**Panasonic**

# TEST RUN SERVICE MANUAL

**R410A**

# 3WAY VRF SYSTEM

## U-72MF1U9
## U-72MF1U9E*
## U-96MF1U9
## U-96MF1U9E*

*TENTATIVE*

SANYO
SANYO
SANYO

Section
1
2
3
4
5
6

### Model No.

### Outdoor Units

| Class | 72 | 96 |
|---|---|---|
| Model Name | U-72MF1U9<br>U-72MF1U9E* | U-96MF1U9<br>U-96MF1U9E* |

Refrigerant R410A is used in the outdoor units.
* Salt-Air Damage Resistant Specifications.

### Indoor Units

| | Class | 7 | 9 | 12 | 15 | 18 | 19 | 24 | 36 | 48 | 54 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| U1 | 4-Way Cassette | | | S-12MU1U6 | | S-18MU1U6 | | S-24MU1U6 | S-36MU1U6 | | |
| Y1 | 4-Way Cassette 60×60 | | | S-12MY1U6 | | S-18MY1U6 | | | | | |
| D1 | 1-Way Cassette | S-07MD1U6 | S-09MD1U6 | S-12MD1U6 | | | | | | | |
| F1 | Low Silhouette Ducted | S-07MF1U6 | S-09MF1U6 | S-12MF1U6 | S-15MF1U6 | S-18MF1U6 | | S-24MF1U6 | S-36MF1U6 | S-48MF1U6 | S-54MF1U6 |
| M1 | Slim Low Static Ducted | S-07MM1U6 | S-09MM1U6 | S-12MM1U6 | S-15MM1U6 | S-18MM1U6 | | | | | |
| E1 | High Static Pressure Ducted | | | | | | | | S-36ME1U6 | S-48ME1U6 | |
| T1 | Ceiling | | | S-12MT1U6 | | S-18MT1U6 | | S-24MT1U6 | | | |
| K1 | Wall Mounted | S-07MK1U6 | S-09MK1U6 | S-12MK1U6 | | S-18MK1U6 | S-19MS1U6** | S-24MK1U6 | | | |
| P1 | Floor Standing | S-07MP1U6 | S-09MP1U6 | S-12MP1U6 | S-15MP1U6 | S-18MP1U6 | | S-24MP1U6 | | | |
| R1 | Concealed Floor Standing | S-07MR1U6 | S-09MR1U6 | S-12MR1U6 | S-15MR1U6 | S-18MR1U6 | | S-24MR1U6 | | | |

** Necessary to install the External Electronic Expansion Valve Kit (Optional:CZ-P56SVK1U).

85464849302000

REFERENCE NO. SM830202-00

# IMPORTANT!
# Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

**For safe installation and trouble-free operation, you must:**

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.

⚠ **WARNING** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ **CAUTION** This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

## If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

## In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

## SPECIAL PRECAUTIONS

### **WARNING** When Wiring

⚠ **ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.**

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death.**
- **Ground the unit** following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

### When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

### When Installing…

**…In a Room**

Properly insulate any tubing run inside a room to prevent “sweating” that can cause dripping and water damage to walls and floors.

**…In Moist or Uneven Locations**

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

**…In an Area with High Winds**

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

**…In a Snowy Area (for Heat Pump-type Systems)**

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

### When Connecting Refrigerant Tubing

- Ventilate the room well, in the event that is refrigerant gas leaks during the installation. Be careful not to allow contact of the refrigerant gas with a flame as this will cause the generation of poisonous gas.
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

### When Servicing

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.

⚠ **CAUTION**

- Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with fire or heat, can produce dangerously toxic gas.
- Confirm after installation that no refrigerant gas is leaking. If the gas comes in contact with a burning stove, gas water heater, electric room heater or other heat source, it can cause the generation of poisonous gas.

## Check of Density Limit

**The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its density will not exceed a set limit.**

The refrigerant (R410A), which is used in the airconditioner, is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws imposed to protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its density should rise excessively. Suffocation from leakage of refrigerant is almost non-existent. With the recent increase in the number of high density buildings, however, the installation of multi air conditioner systems is on the increase because of the need fo reffective use off loor space, individual control, energy conservation by curtailing heat and carrying power, etc.
Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared to conventional individual air conditioners. If a single unit of the multi air conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its density does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

ASHRAE and the International Mechanical Code of the ICC as well as CSA provide guidance and define safeguards related to the use of refrigerants, all of which define a Refrigerant Concentration Level (RCL) of 25 pounds per 1,000 cubic feet for R410A refrigerant.
For additional guidance and precautions related to refrigerant safety, please refer to the following documents:

International Mechanical Code 2009 (IMC-2009)
(or more recently revised)

ASHRAE 15
ASHRAE 34

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# 1. Test Run

## 1-1. Preparing for Test Run

- Before attempting to start the air conditioner, check the following.

(1) All loose matter is removed from the cabinet, especially steel filings, bits of wire, and clips.

(2) The control wiring is correctly connected and all electrical connections are tight.

(3) The protective spacers for the compressor used for transportation have been removed. If not, remove them now.

(4) The transportation pads for the indoor fan have been removed. If not, remove them now.

(5) The power has been connected to the unit for at least 5 hours before starting the compressor. The bottom of the compressor should be warm to the touch and the crankcase heater around the feet of the compressor should be hot to the touch.

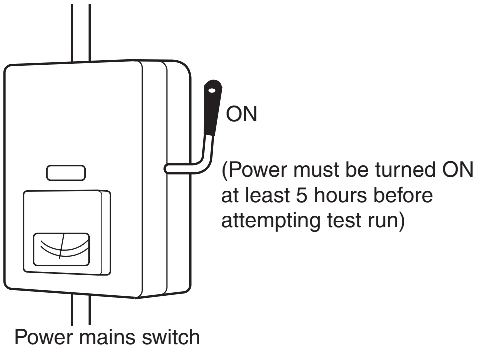
(6) Both the gas and liquid tube service valves are open. If not, open them now.

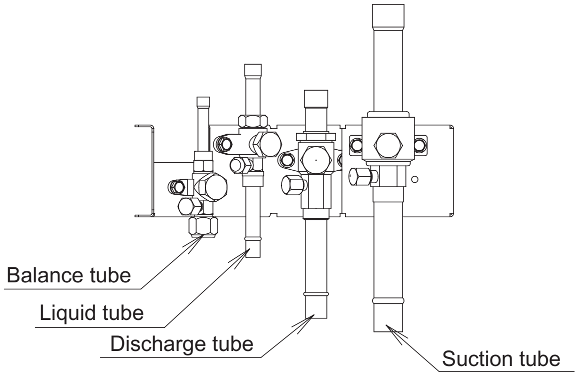
(7) Request that the customer be present for the trial run. Explain the contents of the instruction manual, then have the customer actually operate the system.

(8) Be sure to give the instruction manual and warranty certificate to the customer.

(9) When replacing the control PCB, be sure to make all the same settings on the new PCB as were in use before replacement.

The existing EEP ROM is not changed, and is connected to the new control PCB.


ON
(Power must be turned ON at least 5 hours before attempting test run)
Power mains switch

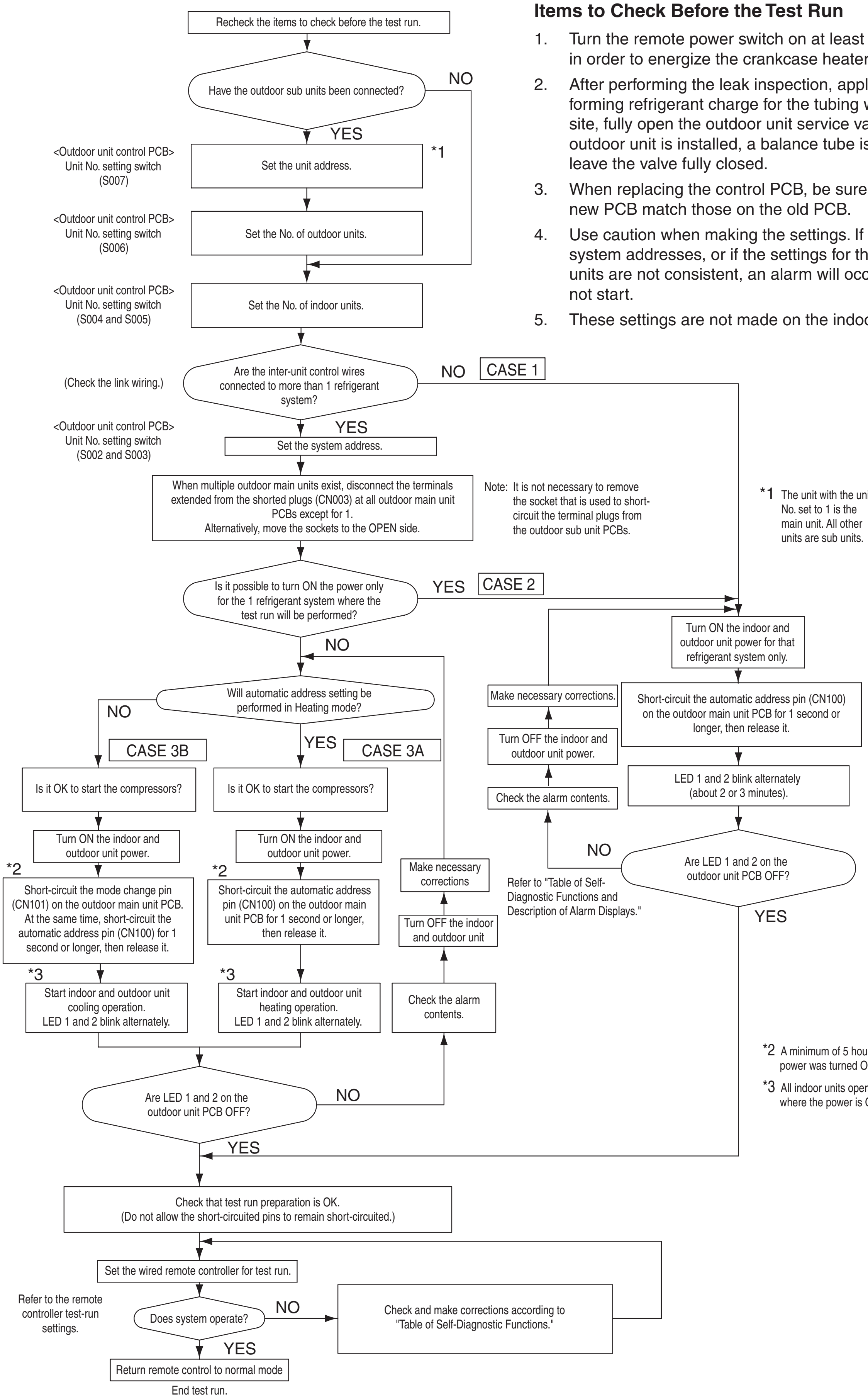

Balance tube
Liquid tube
Discharge tube
Suction tube

# 1. Test Run

## 1-2. Test Run Procedure

### Items to Check Before the Test Run

1. Turn the remote power switch on at least 5 hours before the test, in order to energize the crankcase heater.
2. After performing the leak inspection, applying vacuum, and performing refrigerant charge for the tubing which is connected on-site, fully open the outdoor unit service valve. However if only one outdoor unit is installed, a balance tube is not used. Therefore, leave the valve fully closed.
3. When replacing the control PCB, be sure that the settings on the new PCB match those on the old PCB.
4. Use caution when making the settings. If there are duplicated system addresses, or if the settings for the Nos. of the indoor units are not consistent, an alarm will occur and the system will not start.
5. These settings are not made on the indoor unit PCB.


Recheck the items to check before the test run.
Have the outdoor sub units been connected?
NO
YES
*1
<Outdoor unit control PCB> Unit No. setting switch (S007)
Set the unit address.
<Outdoor unit control PCB> Unit No. setting switch (S006)
Set the No. of outdoor units.
<Outdoor unit control PCB> Unit No. setting switch (S004 and S005)
Set the No. of indoor units.
(Check the link wiring.)
Are the inter-unit control wires connected to more than 1 refrigerant system?
NO
CASE 1
YES
<Outdoor unit control PCB> Unit No. setting switch (S002 and S003)
Set the system address.
When multiple outdoor main units exist, disconnect the terminals extended from the shorted plugs (CN003) at all outdoor main unit PCBs except for 1. Alternatively, move the sockets to the OPEN side.
Note: It is not necessary to remove the socket that is used to short-circuit the terminal plugs from the outdoor sub unit PCBs.
Is it possible to turn ON the power only for the 1 refrigerant system where the test run will be performed?
YES
CASE 2
NO
Turn ON the indoor and outdoor unit power for that refrigerant system only.
Make necessary corrections.
Short-circuit the automatic address pin (CN100) on the outdoor main unit PCB for 1 second or longer, then release it.
Turn OFF the indoor and outdoor unit power.
LED 1 and 2 blink alternately (about 2 or 3 minutes).
Check the alarm contents.
NO
Are LED 1 and 2 on the outdoor unit PCB OFF?
Refer to "Table of Self-Diagnostic Functions and Description of Alarm Displays."
YES
Will automatic address setting be performed in Heating mode?
NO
CASE 3B
YES
CASE 3A
Is it OK to start the compressors?
Is it OK to start the compressors?
Turn ON the indoor and outdoor unit power.
Turn ON the indoor and outdoor unit power.
*2
Short-circuit the mode change pin (CN101) on the outdoor main unit PCB. At the same time, short-circuit the automatic address pin (CN100) for 1 second or longer, then release it.
*2
Short-circuit the automatic address pin (CN100) on the outdoor main unit PCB for 1 second or longer, then release it.
Make necessary corrections
Turn OFF the indoor and outdoor unit
*3
Start indoor and outdoor unit cooling operation. LED 1 and 2 blink alternately.
*3
Start indoor and outdoor unit heating operation. LED 1 and 2 blink alternately.
Check the alarm contents.
Are LED 1 and 2 on the outdoor unit PCB OFF?
NO
YES
Check that test run preparation is OK. (Do not allow the short-circuited pins to remain short-circuited.)
Set the wired remote controller for test run.
Refer to the remote controller test-run settings.
Does system operate?
NO
Check and make corrections according to "Table of Self-Diagnostic Functions."
YES
Return remote control to normal mode
End test run.

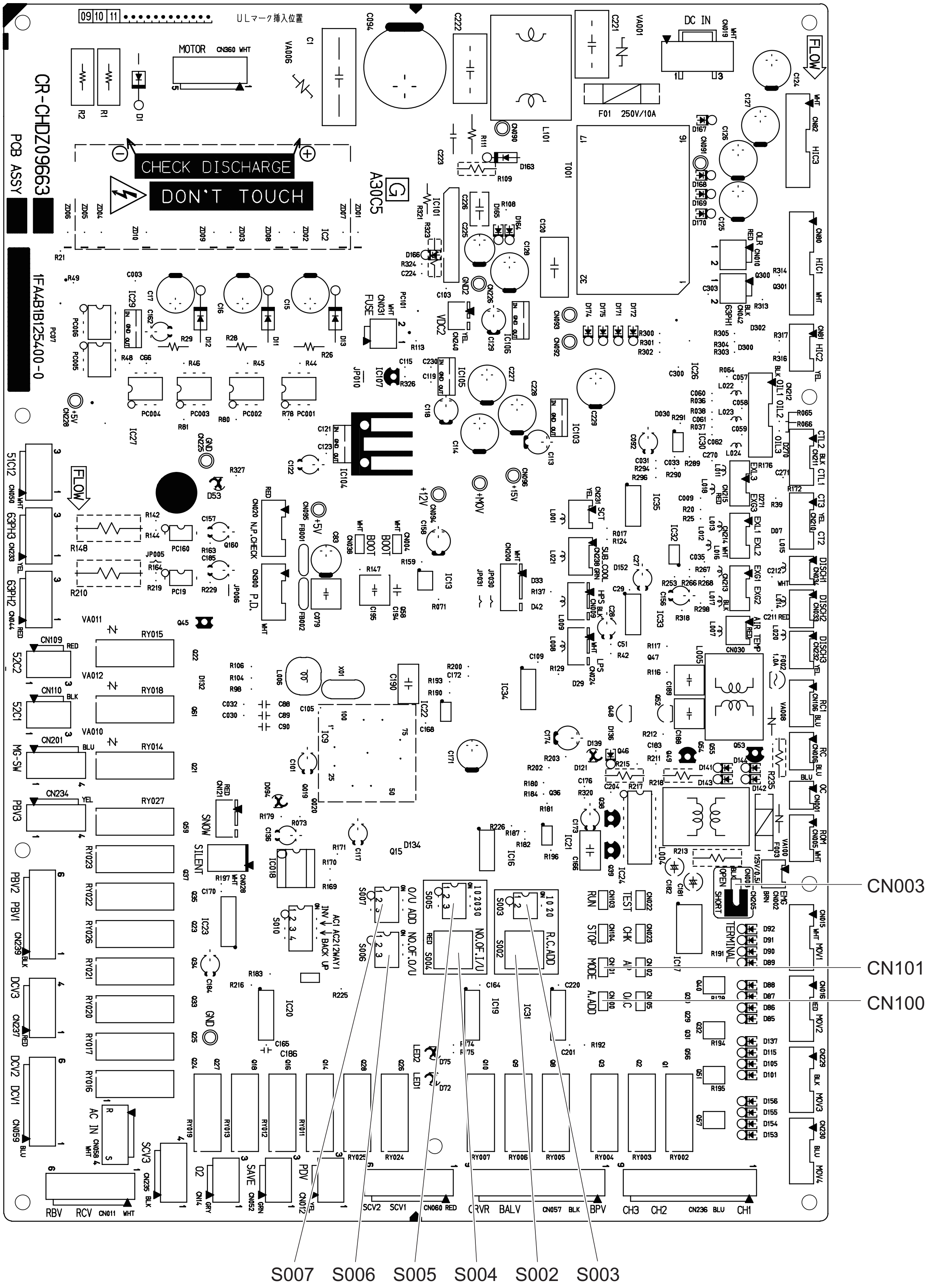
*1 The unit with the unit No. set to 1 is the main unit. All other units are sub units.

*2 A minimum of 5 hours must have passed after the power was turned ON to the outdoor unit.

*3 All indoor units operate in all refrigerant systems where the power is ON.

## 2. Setting of Unit Control PCB

### 2-1. Main Outdoor Unit PCB Setting


CR-CHDZ09663
PCB ASSY
CHECK DISCHARGE
DON'T TOUCH
CN003
CN101
CN100
S007
S006
S005
S004
S002
S003

## 2. Setting of Unit Control PCB

- Examples of the No. of indoor units settings (S005, S004)

| No. of indoor units | Indoor unit setting (S005) (3P DIP switch, blue) 10 20 30 | Indoor unit setting (S004) (Rotary switch, red) |
|---|---|---|
| 1 unit (factory setting) | All OFF | Set to 1 |
| 11 units | 1 ON | Set to 1 |
| 21 units | 2 ON | Set to 1 |
| 31 units | 3 ON | Set to 1 |
| 40 units | 1 & 3 ON | Set to 0 |

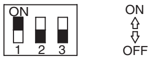
- Examples of refrigerant circuit (R.C.) address settings (required when link wiring is used) (S003, S002)

| System address No. | System address (S003) (2P DIP switch, blue) 10 20 | System address (S002) (Rotary switch, black) |
|---|---|---|
| System 1 (factory setting) | Both OFF | Set to 1 |
| System 11 | 1 ON | Set to 1 |
| System 21 | 2 ON | Set to 1 |
| System 30 | 1 & 2 ON | Set to 0 |

- Examples of the No. of outdoor units settings (S006)

| No. of outdoor units | Outdoor unit setting (S006) (3P DIP switch, blue) |
|---|---|
| 1 unit (factory setting) | 1 ON |
| 2 units | 2 ON |
| 3 units | 1 & 2 ON |

- Address setting of main outdoor unit (S007)

| Unit No. setting | Address setting of outdoor unit (S007) (3P DIP switch, blue) |
|---|---|
| Unit No. 1 (main unit)<br>(factory setting) |  |

- Address setting of sub outdoor unit

| Unit No. setting | Address setting of outdoor unit (S007) (3P DIP switch, blue) |
|---|---|
| Unit No. 2 (sub unit)<br>(factory setting) | 2 ON |
| Unit No. 3 (sub unit) | 1 & 2 ON |

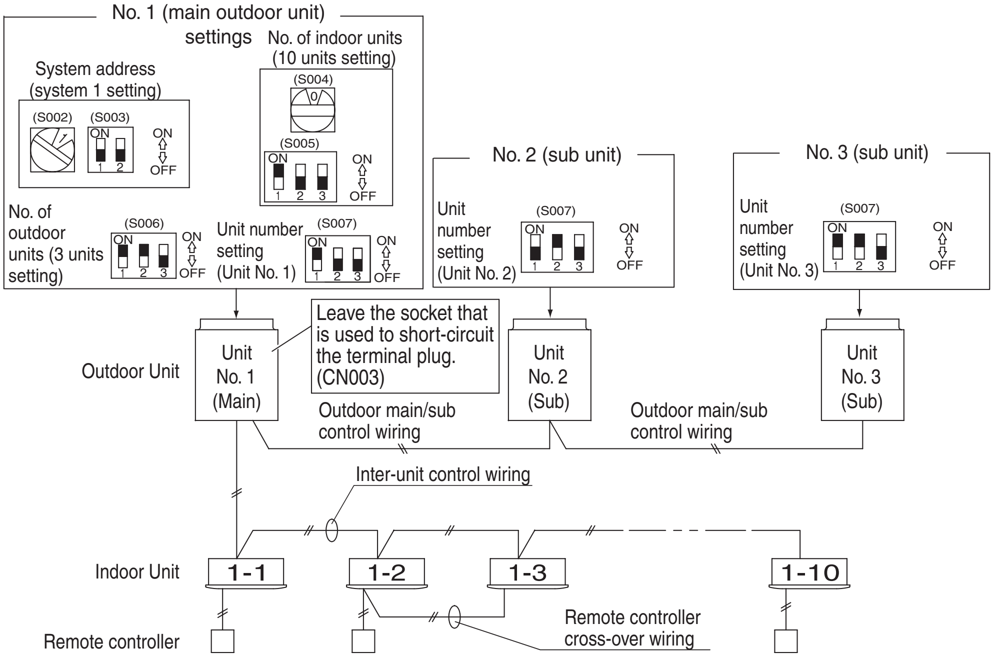
The sub unit control PCB contains the same switches as the main unit control PCB for No. of indoor units, No. of outdoor units, and system address. However it is not necessary to set these switches.

# 3. Auto Address Setting

## 3-1. Auto Address Setting

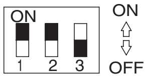
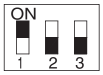
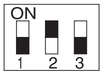
### Basic wiring diagram: Example (1)

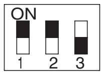
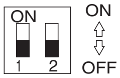
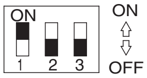
- **If link wiring is not used (The inter-unit control wires are not connected to multiple refrigerant systems.)**
  Indoor unit addresses can be set without operating the compressors.


No. 1 (main outdoor unit) settings
System address (system 1 setting)
(S002)
(S003)
ON
1 2
ON
OFF
No. of indoor units (10 units setting)
(S004)
0
(S005)
ON
1 2 3
ON
OFF
No. of outdoor units (3 units setting)
(S006)
ON
1 2 3
ON
OFF
Unit number setting (Unit No. 1)
(S007)
ON
1 2 3
ON
OFF
No. 2 (sub unit)
Unit number setting (Unit No. 2)
(S007)
ON
1 2 3
ON
OFF
No. 3 (sub unit)
Unit number setting (Unit No. 3)
(S007)
ON
1 2 3
ON
OFF
Leave the socket that is used to short-circuit the terminal plug. (CN003)
Outdoor Unit
Unit No. 1 (Main)
Unit No. 2 (Sub)
Unit No. 3 (Sub)
Outdoor main/sub control wiring
Outdoor main/sub control wiring
Inter-unit control wiring
Indoor Unit
1-1
1-2
1-3
1-10
Remote controller cross-over wiring
Remote controller

Case 1

**(1) Automatic Address Setting from the Outdoor Unit**

1. To set the number of outdoor units, on the outdoor main unit control PCB set the No. of outdoor units DIP switch (S006) to  (3 units), and set the unit No. DIP switch (S007) to  (unit No. 1 - main outdoor unit).
2. On the No. 2 (sub) unit control PCB, set the unit No. switch (S007) to  (unit No. 2).

   On the No. 3 (sub) unit control PCB, set the unit No. switch (S007) to  (unit No. 3).
3. On the outdoor main unit control PCB, check that the system address rotary switch (S002) is set to "1" and that the DIP switch (S003) is set to  "0." (These are the settings at the time of factory shipment.)
4. To set the number of indoor units that are connected to the outdoor unit to 10, on the outdoor main unit control PCB set the No. of indoor units DIP switch (S005) to  "1." and set the rotary switch (S004) to "0."
5. Turn ON the power to the indoor and outdoor units.
6. On the outdoor main unit control PCB, short-circuit the automatic address pin (CN100) for 1 second or longer, then release it.

   ↓

   (Communication for automatic address setting begins.)

   ↓ * To cancel, again short-circuit the automatic address pin (CN100) for 1 second or longer, then release it. The LED that indicates that automatic address setting is in progress turns OFF and the process is stopped. Be sure to perform automatic address setting again.

   (Automatic address setting is completed when LEDs 1 and 2 on the outdoor main unit control PCB turn OFF.)

   ↓
7. Operation from the remote controllers is now possible.
   * To perform automatic address setting from the remote controller, perform steps 1 to 5, then use the remote controller and complete automatic address setting.

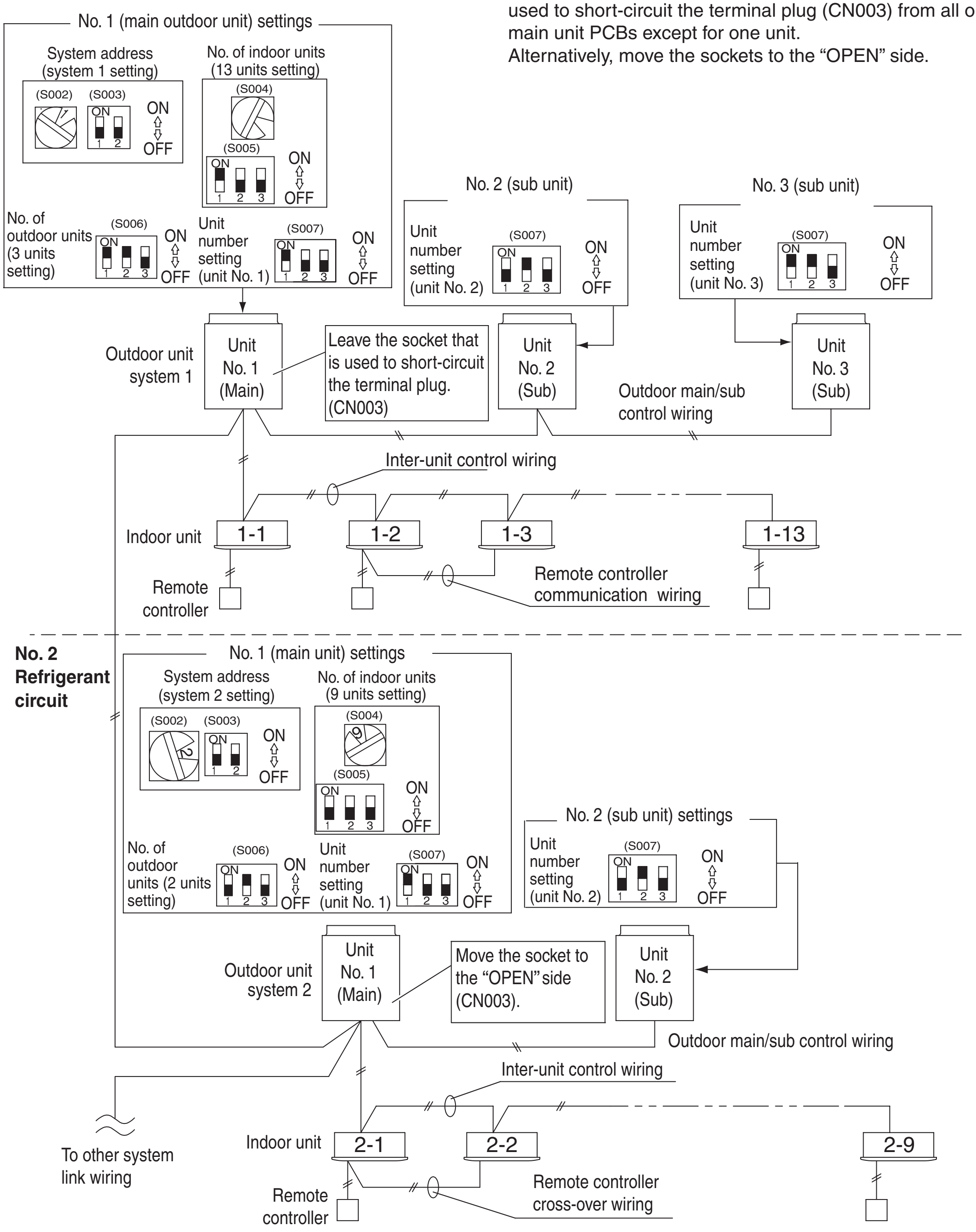
● Refer to "Automatic Address Setting from the Remote Controller."

# 3. Auto Address Setting

## Basic wiring diagram: Example (2)

- **If link wiring is used**

* When multiple outdoor main units exist, remove the socket that is used to short-circuit the terminal plug (CN003) from all outdoor main unit PCBs except for one unit.
Alternatively, move the sockets to the "OPEN" side.


No. 1 (main outdoor unit) settings
System address (system 1 setting)
(S002)
(S003)
ON
OFF
No. of indoor units (13 units setting)
(S004)
(S005)
No. of outdoor units (3 units setting)
(S006)
Unit number setting (unit No. 1)
(S007)
No. 2 (sub unit)
Unit number setting (unit No. 2)
No. 3 (sub unit)
Unit number setting (unit No. 3)
Outdoor unit system 1
Unit No. 1 (Main)
Leave the socket that is used to short-circuit the terminal plug. (CN003)
Unit No. 2 (Sub)
Outdoor main/sub control wiring
Unit No. 3 (Sub)
Inter-unit control wiring
Indoor unit
1-1
1-2
1-3
1-13
Remote controller
Remote controller communication wiring
No. 2 Refrigerant circuit
No. 1 (main unit) settings
System address (system 2 setting)
No. of indoor units (9 units setting)
No. of outdoor units (2 units setting)
No. 2 (sub unit) settings
Outdoor unit system 2
Move the socket to the "OPEN" side (CN003).
Outdoor main/sub control wiring
Inter-unit control wiring
To other system link wiring
2-1
2-2
2-9
Remote controller cross-over wiring

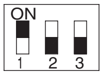
Make settings as appropriate for the cases listed below.
(Refer to the instructions on the following pages.)

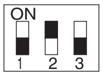
- **Indoor and outdoor unit power can be turned ON for each system separately.** → Case 2
- **Indoor and outdoor unit power cannot be turned ON for each system separately.**
  - Automatic address setting in Heating mode → Case 3A
  - Automatic address setting in Cooling mode → Case 3B

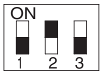
## Case 2 **Automatic Address Setting (no compressor operation)**

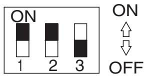
- Indoor and outdoor unit power can be turned ON for each system separately.
  Indoor unit addresses can be set without operating the compressors.

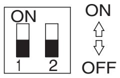
**Automatic Address Setting from Outdoor Unit**

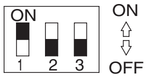
1. On the No. 1 (main) unit control PCB, set the unit No. switch (S007) to  (unit No. 1).

   On the No. 2 (sub) unit control PCB, set the unit No. switch (S007) to  (unit No. 2).

   On the No. 3 (sub) unit control PCB, set the unit No. switch (S007) to  (unit No. 3).

2. To set the number of outdoor units on the outdoor main unit control PCB, set the No. of outdoor units DIP switch (S006) to  (3 units).

3. On the outdoor main unit control PCB, check that the system address rotary switch (S002) is set to “1” and that the DIP switch (S003) is set to “0”  . (These are the settings at the time of factory shipment.)

4. To set the number of indoor units that are connected to the outdoor unit to 13, on the outdoor main unit control PCB set the No. of indoor units DIP switch (S005) to “1”  , and set the rotary switch (S004) to “3.”

5. Turn on power to all indoor and outdoor units in the system.

6. Short-circuit the automatic address pin at the outdoor main unit (CN100) for 1 second or longer, then release it.

   ↓

   (Communication for automatic address setting begins.)

   ↓ * To cancel, again short-circuit the automatic address pin (CN100) for 1 second or longer, then release it.
   The LED that indicates automatic address setting is in progress turns OFF and the process is stopped.
   Be sure to perform automatic address setting again.

   (Automatic address setting is completed when LEDs 1 and 2 on the outdoor main unit control PCB turn OFF.)

   ↓

7. Next turn the power ON only for the indoor and outdoor units of the next (different) system. Repeat steps 1 - 5 in the same way to complete automatic address settings for all systems.

   ↓

8. Operation from the remote controllers is now possible.
   * To perform automatic address setting from the remote controller, perform steps 1 - 5, then use the remote controller and complete automatic address setting.

- Refer to “Automatic Address Setting from Remote Controller.”

# 3. Auto Address Setting

## Case 3A **Automatic Address Setting in Heating Mode**

- Indoor and outdoor unit power cannot be turned ON for each system separately.
  In the following, automatic setting of indoor unit addresses is not possible if the compressors are not operating.
  Therefore perform this process only after completing all refrigerant tubing work.

**Automatic Address Setting from Outdoor Unit**

1. Perform steps 1 - 4 in the same way as for Case 2 .

5. Turn the indoor and outdoor unit power ON at all systems.

↓

6. To perform automatic address setting in Heating mode , on the outdoor main unit control PCB in the refrigerant system where you wish to set the addresses, short-circuit the automatic address pin (CN100) for 1 second or longer, then release it. (Be sure to perform this process for one system at a time. Automatic address settings cannot be performed for more than one system at the same time.)

↓

(Communication for automatic address setting begins, the compressors turn ON, and automatic address setting in Heating mode begins.)
(All indoor units operate.)

↓

* To cancel, again short-circuit the automatic address pin (CN100) for 1 second or longer, then release it. The LED that indicates automatic address setting is in progress turns OFF and the process is stopped. Be sure to perform automatic address setting again.

(Automatic address setting is completed when the compressors stop and LED 1 and 2 on the main unit control PCB turn OFF.)

↓

7. At the outdoor main unit in the next (different) system, short-circuit the automatic address pin (CN100) for 1 second or longer, then release it.

↓

(Repeat the same steps to complete automatic address setting for all units.)

↓

8. Operation from the remote controllers is now possible.
   * To perform automatic address setting from the remote controller, perform steps 1 - 5, then use the remote controller and to complete automatic address setting.

- Refer to “Automatic Address Setting from Remote Controller.”

# 3. Auto Address Setting

## Case 3B **Automatic Address Setting in Cooling Mode**

- Indoor and outdoor unit power cannot be turned ON for each system separately. In the following, automatic setting of indoor unit addresses is not possible if the compressors are not operating. Therefore perform this process only after completing all refrigerant tubing work.
  Automatic address setting can be performed during Cooling operation.

### Automatic Address Setting from Outdoor Unit

1. Perform steps 1 - 4 in the same way as for Case 2 .
5. Turn the indoor and outdoor unit power ON at all systems.

↓

6. To perform automatic address setting in Cooling mode , on the outdoor main unit control PCB in the refrigerant system where you wish to set the addresses, short-circuit the mode change 2P pin (CN101). At the same time, short-circuit the automatic address pin (CN100) for 1 second or longer, then release it. (Be sure to perform this process for one system at a time. Automatic address settings cannot be performed for more than one system at the same time.)

↓

(Communication for automatic address setting begins, the compressors turn ON, and automatic address setting in Cooling mode begins.)
(All indoor units operate.)

↓ * To cancel, again short-circuit the automatic address pin (CN100) for 1 second or longer, then release it. The LED that indicates automatic address setting is in progress turns OFF and the process is stopped. Be sure to perform automatic address setting again.

(Automatic address setting is completed when the compressors stop and LED 1 and 2 on the outdoor main unit control PCB turn OFF.)

↓

7. At the outdoor main unit in the next (different) system, short-circuit the automatic address pin (CN100) for 1 second or longer, then release it.

↓

(Repeat the same steps to complete automatic address setting for all units.)

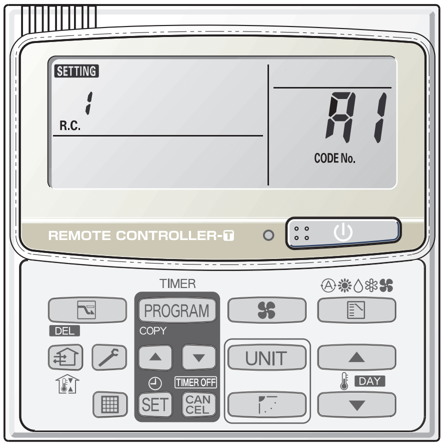
↓

8. Operation from the remote controllers is now possible.
   * Automatic address setting in Cooling mode cannot be done from the remote controller.

### Automatic Address Setting* from the Remote Controller

Selecting each refrigerant system individually for automatic address setting

---Automatic address setting for each system: Item code “A1.”

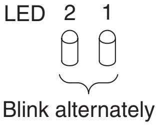


1. Press the remote controller timer time ▲ button and 🔧 button at the same time.
   (Press and hold for 4 seconds or longer.)
2. Next, press either the temperature setting ▲ or ▼ button. (Check that the item code is “A1.”)
3. Use either the UNIT or ⌜ button to set the system No. to perform automatic address setting.
4. Then press the SET button.
   (Automatic address setting for one refrigerant system begins.)
   (When automatic address setting for one system is completed, the system returns to normal stopped status.) <Approximately 4 - 5 minutes is required.>
   (During automatic address setting, “NOW SETTING” is displayed on the remote controller. This message disappears when automatic address setting is completed.)
5. Repeat the same steps to perform automatic address setting for each successive system.

# 3. Auto Address Setting

## Display during automatic address setting

- On outdoor main unit PCB



* Do not short-circuit the automatic address setting pin (CN100) again while automatic address setting is in progress. Doing so will cancel the setting operation and will cause LED 1 and 2 to turn OFF.

* When automatic address setting has been successfully completed, both LED 1 and 2 turn OFF.

* LED 1 is D72. LED 2 is D75.

* If automatic address setting is not completed successfully, refer to the table below and correct the problem. Then perform automatic address setting again.

- Display of LED 1 and 2 on the outdoor unit control PCB

(☼: ON ✷: Blinking ● :OFF)

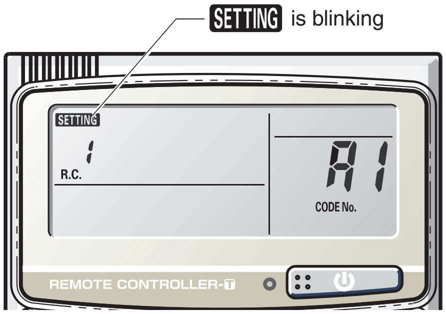
| LED1 | LED2 | Display meaning |
|---|---|---|
| ☼ | ☼ | After the power is turned ON (and automatic address setting is not in progress), no communication with the indoor units in that system is possible. |
| ● | ☼ | After the power is turned ON (and automatic address setting is not in progress), 1 or more indoor units are confirmed in that system; however, the number of indoor units does not match the number that was set. |
| ✷<br>Alternating | ✷ | Automatic address setting is in progress. |
| ● | ● | Automatic address setting completed. |
| ✷<br>Simultaneous | ✷ | At time of automatic address setting, the number of indoor units did not match the number that was set.<br>"⚠"(when indoor units are operating) indication appears on the display. |
| ✷<br>Alternating | ✷ | Refer to "Table of Self-Diagnostic Functions and Description of Alarm Displays." |

**NOTE**

"⚠" indicates that the solenoid is fused or that there is a CT detection current failure (current is detected when the compressor is OFF).

- Remote controller display

SETTING is blinking



### Request concerning recording the indoor/outdoor unit combination Nos.

After automatic address setting has been completed, be sure to record them for future reference.

List the outdoor main unit system address and the addresses of the indoor units in that system in an easily visible location (next to the nameplate), using a permanent marking pen or similar means that cannot be abraded easily.

Example: (Outdoor) 1 - (Indoor) 1-1, 1-2, 1-3… (Outdoor) 2 - (Indoor) 2-1, 2-2, 2-3…

These numbers are necessary for later maintenance. Please be sure to indicate them.

### Checking the indoor unit addresses

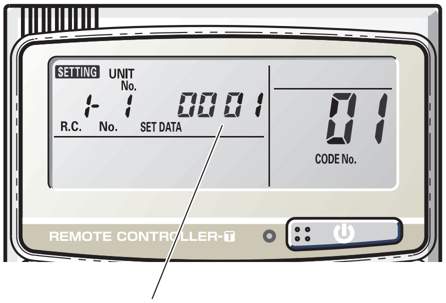
Use the remote controller to check the indoor unit address.

#### <If 1 indoor unit is connected to 1 remote controller>

1. Press and hold the 🔧 button and ⌂ button for 4 seconds or longer (simple settings mode).
2. The address is displayed for the indoor unit that is connected to the remote controller.
   (Only the address of the indoor unit that is connected to the remote controller can be checked.)
3. Press the 🔧 button again to return to normal remote controller mode.

#### <If multiple indoor units are connected to 1 remote controller (group control)>

1. Press and hold the 🔧 button and ⌂ button for 4 seconds or longer (simple settings mode).
2. “ALL” is displayed on the remote controller.
3. Next, press the UNIT button.
4. The address is displayed for 1 of the indoor units which is connected to the remote controller. Check that the fan of that indoor unit starts and that air is discharged.
5. Press the UNIT button again and check the address of each indoor unit in sequence.
6. Press the 🔧 button again to return to normal remote controller mode.



Number changes to indicate which indoor unit is currently selected.

### 4. Remote Controller Test Run Settings

1. Press the remote controller 🔧 button for 4 seconds or longer. Then press the ⏻ button.

- “TEST RUN” appears on the LCD display while the test run is in progress.
- The temperature cannot be adjusted when in Test Run mode.
  (This mode places a heavy load on the machines. Therefore use it only when performing the test run.)

2. The test run can be performed using the HEAT, COOL, or FAN operation modes.

   **NOTE**

   The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.

3. If correct operation is not possible, a code is displayed on the remote controller LCD display.
   (Refer to “Table of Self-Diagnostic Functions” and correct the problem.)
4. After the test run is completed, press the 🔧 button again. Check that “TEST RUN” disappears from the LCD display. (To prevent continuous test runs, this remote controller includes a timer function that cancels the test run after 60 minutes.)

* If the test run is performed using the wired remote controller, operation is possible even if the cassette-type ceiling panel has not been installed. (“P09” display does not occur.)

# 5. Caution for Pump Down

## 5. Caution for Pump Down

Pump down means refrigerant gas in the system is returned to the outdoor unit. Pump down is used when the unit is to be moved, or before servicing the refrigerant circuit.

**CAUTION**

- **This outdoor unit cannot collect more than the rated refrigerant amount as shown by the nameplate on the back.**
- **If the amount of refrigerant is more than that recommended, do not conduct pump down. In this case use another refrigerant collecting system.**

## 6. Meaning of Alarm Messages

### Table of Self-Diagnostics Functions and Description of Alarm Displays

Alarm messages are indicated by the blinking of LED 1 and 2 (D72, D75) on the outdoor unit PCB. They are also displayed on the wired remote controller.

- Viewing the LED 1 and 2 (D72 and D75) alarm displays

| LED1 | LED2 | Alarm contents |
|---|---|---|
| ☼ | ☼ | Alarm Display<br>LED 1 blinks M times, then LED 2 blinks N times. The cycle then repeats.<br>M = 2: P alarm 3: H alarm 4: E alarm 5: F alarm 6: L alarm<br>N = Alarm No.<br>Example: LED 1 blinks 2 times, then LED 2 blinks 17 times. The cycle then repeats.<br>Alarm is "P17". |
| Alternating | | |

(☼ : Blinling) Connect the outdoor maintenance remote controller to the RC socket on the outdoor main unit control PCB (3P, blue),and check the Alarm Messages on the remote controller display.

| Possible cause of malfunction | | | Alarm Message |
|---|---|---|---|
| Serial communication errors<br>Mis-setting | Remote controller is detecting error signal from indoor unit. | Error in receiving serial communication signal. (Auto address is not completed.) | <E01> |
| | | Error in transmitting serial communication signal. | <E02> |
| | Indoor unit is detecting error signal from remote controller and system controller. | | <<E03>> |
| | Indoor unit is detecting error signal from outdoor unit. | Group wiring failure of indoor units in the refrigerant system (occurring when remote controller is operated immediately after automatic address setting) | E04 |
| | Outdoor unit is detecting error signal from indoor unit. | • Error in receiving serial communication signal.<br>• There is an indoor unit which does not send signals when the power is ON. | E06 |
| | Improper setting | Indoor unit address setting is duplicated. | <<E08>> |
| | | Duplicated remote controller "main" setting. | <<E09>> |
| | | • Starting auto. address setting is prohibited.<br>• AP pin / CN102 is shorted while the auto. address setting started. | E12 |
| | Indoor unit communication error of group control wiring. | Error of main indoor unit in receiving serial communication signal from sub indoor units. | E18 |
| | During auto. address setting, number of connected units does not correspond to number set. | Number of connected indoor units is less than the number set. | E15 |
| | | Number of connected indoor units is more than the number set. | E16 |
| | | No indoor unit is connected. | E20 |
| | | Main outdoor unit is detecting error signal from sub outdoor unit. | E24 |
| | | Duplicated outdoor unit address setting. | E25 |
| | | Mismatch in "No. of outdoor units" setting. | E26 |
| | | Error of sub outdoor unit in receiving signal from main outdoor unit. | E29 |
| | Improper setting | Connected indoor unit is not a multi unit. | <<L02>> |
| | | Duplication of main indoor unit address setting in group control. | <L03> |
| | | Group control wiring is connected to individual control indoor unit. | L07 |
| | | Indoor unit address is not set. | L08 |
| | | Capacity code of indoor unit is not set. | <<L09>> |
| | | Duplication of outdoor system address setting. | L04 |
| | | Capacity code of outdoor unit is not set. | L10 |
| | | Mismatch of outdoor unit type. | L17 |
| Thermistor fault | Indoor unit | Indoor coil temp. sensor (E1) | <<F01>> |
| | | Indoor coil temp. sensor (E3) | <<F03>> |
| | | Indoor suction air (room) temp. sensor (TA) | <<F10>> |
| | | Indoor discharge air temp. sensor (BL) | <<F11>> |

Continued

# 6. Meaning of Alarm Messages

| **Possible cause of malfunction** | | | **Alarm Message** |
|---|---|---|---|
| Activation of protective device | Protective device in indoor unit is activated. | Thermal protector in indoor unit fan motor is activated. | <<P01>> |
| | | Improper wiring connections of ceiling panel. | <<P09>> |
| | | Float switch is activated. | <<P10>> |
| | | Operation of protective function of fan inverter. | P12 |
| | | $O^2$ sensor (detects low oxygen level) activated. | P14 |
| | | Incorrect discharge temperature. (Comp. No. 1 (INV)) | P03 |
| | | High pressure switch is activated. | P04 |
| | | Negtive (defective) phase. | P05 |
| | | Compressor running failure resulting from missing phase in the compressor wiring, etc. (Start failure not caused by IPM or no gas.) | P16 |
| | | Incorrect discharge temperature. (Comp. No. 2 (constant speed)) | P17 |
| | | Outdoor unit fan motor is unusual. | P22 |
| | | Overcurrent at time of compressor runs more than 80Hz (DCCT secondary current or ACCT primary current is detected at a time other than when IPM has tripped.) | P26 |
| | | IPM trip (IPM current or temperature) | H31 |
| | | Inverter for compressor is unusual. (DC compressor does not operate.) | P29 |
| Thermistor fault | Indoor thermistor is either open or damaged. | Indoor coil temp. sensor (E1) | <<F01>> |
| | | Indoor coil temp. sensor (E3) | <<F03>> |
| | | Indoor suction air (room) temp. sensor (TA) | <<F10>> |
| | | Indoor discharge air temp. sensor (BL) | <<F11>> |
| | Outdoor thermistor is either open or damaged. | Comp. No. 1 (INV) discharge gas temp. sensor (DISCH1) | F04 |
| | | Comp. No. 2 (constant speed) discharge gas temp. sensor (DISCH2) | F05 |
| | | Outdoor No. 1 coil gas temp. sensor (EXG1) | F06 |
| | | Outdoor No. 1 coil liquid temp. sensor (EXL1) | F07 |
| | | Outdoor air temp. sensor (AIR TEMP) | F08 |
| | | Compressor suction temp. sensor (SCT) | F12 |
| | | High pressure sensor. | F16 |
| | | Low-pressure sensor failure | F17 |
| | | Outdoor No. 2 coil gas temp. sensor (EXG2) | F23 |
| | | Outdoor No. 2 coil liquid temp. sensor (EXL2) | F24 |
| EEPROM on indoor unit PCB failure | | | F29 |
| Protective device for compressor is activated | Protective device for compressor No.1 (INV) is activated. | EEPROM on the main or sub outdoor unit PCB has failed. | F31 |
| | | Current is not detected when comp. No. 1 (INV) is ON. | H03 |
| | Protective device for compressor No.2 (constant speed) is activated | Overload current is detected. | H11 |
| | | Lock current is detected. | H12 |
| | | Current is not detected when comp. No.2 (constant speed) is ON. | H13 |
| | | Discharge gas temperture of comp. No.2 (constant speed) is not detected. | H15 |
| | | Low pressure trouble | H06 |
| | Low oil level alarm. | | H07 |
| | Oil sensor fault. (Disconnection, etc.) | Comp. No.1 (INV) oil sensor | H08 |
| | | Comp. No.2 (constant speed) oil sensor | H27 |

Continued

# 6. Meaning of Alarm Messages

| Alarm messages displayed on system controller | | | |
|---|---|---|---|
| Serial communication errors<br>Mis-setting | Error in transmitting serial communication signal | Indoor or main outdoor unit is not oparating correctly.<br>Mis-wiring of control wiring between indoor unit, main outdoor unit and system controller. | C05 |
| | Error in receiving serial communication signal | Indoor or main outdoor unit is not operating correctly.<br>Mis-wiring of control wiring between indoor unit, main outdoor unit and system controller.<br>CN1 is not connected properly. | C06 |
| Activation of protective device | Protective device of sub indoor unit in group control is activated | When using wireless remote controller or system controller, in order to check the alarm message in detail, connect wired remote controller to indoor unit temporarily. | P30 |

**NOTE**

1. Alarm messages in << >> do not affect other indoor unit operations.
2. Alarm messages in < > sometimes affect other indoor unit operations depending on the fault.

# 2. REMOTE CONTROL FUNCTIONS

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# 1. Main Operating Functions

## 1-1. Room Temperature Control

The thermostat is turned ON/OFF according to ▲T as shown below.

| ▲T = Room temperature - Set temperature | |
|---|---|
| When remote controller sensor is used | Room temperature = Temperature detected by the remote controller sensor |
| When body sensor is used | Room temperature = Temperature detected by the body sensor - Intake shift temperature* |

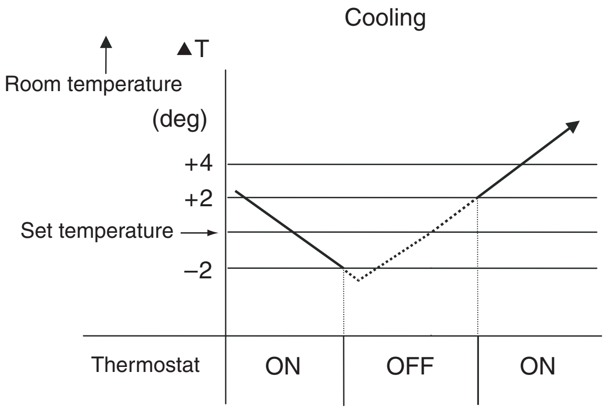
* Intake shift temperature (enabled only during heating)

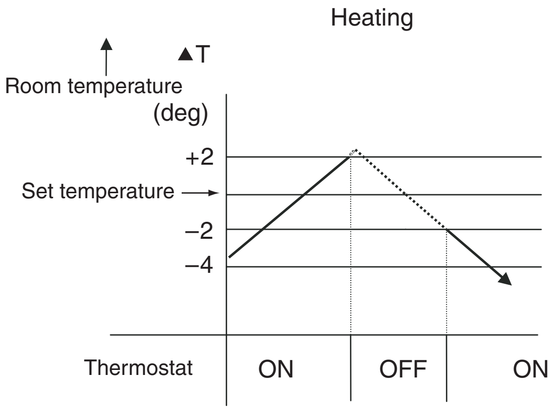
During heating, a difference in temperature occurs between the top and bottom of a room. This value is set in consideration for the difference between the temperature detected by the body sensor and the temperature at the bottom of the room.

<Value set for intake shift temperature at time of shipment>: 7°F

**NOTE**

The shift temperature can be selected in the range of 0 – 18°F, by using the remote controller simplified setting mode.





(1) After the thermostat turns ON, it will not turn OFF again as a result of ▲T for 5 minutes.
(2) After the thermostat turns OFF, it will not turn ON again for 3 minutes. (It also will not turn ON for 3 minutes after the power is switched ON.)
(3) The compressor turns OFF if the mode is changed cooling → heating (or heating → cooling) while the compressor is ON.
(4) If "test run" mode is selected, the thermostat will not turn OFF as a result of ▲T for 60 minutes. (The thermostat is forced ON.)

## 1-2. Automatic Control for Heating and Cooling

### Automatic Heating/Cooling Control

(1) When operation starts, heating or cooling is selected according to the set temperature and the room temperature.
- Room temperature ≥ Set temperature + 2 → Cooling
- Set temperature – 2 < Room temperature ≤ Set temperature + 2 → Monitoring mode (*1)
- Room temperature < Set temperature – 2 → Heating

*1: If the difference between the room temperature and set temperature is small when operation starts, the cooling thermostat remains in standby status (OFF) until the temperature difference increases. When the temperature difference increases, either cooling operation or heating operation is selected. This standby status is known as "monitoring mode."

(2) After operation starts in the selected operating mode, the set temperature is automatically shifted by + 4°F (cooling operation) or – 4°F (heating operation).

Example: Temperature set on the remote controller is 68°F.

| | Selected operating mode | Shifted set temp. | Remote controller display |
|---|---|---|---|
| 1 | Cooling | 72°F | 68°F |
| 2 | Heating | 64°F | 68°F |

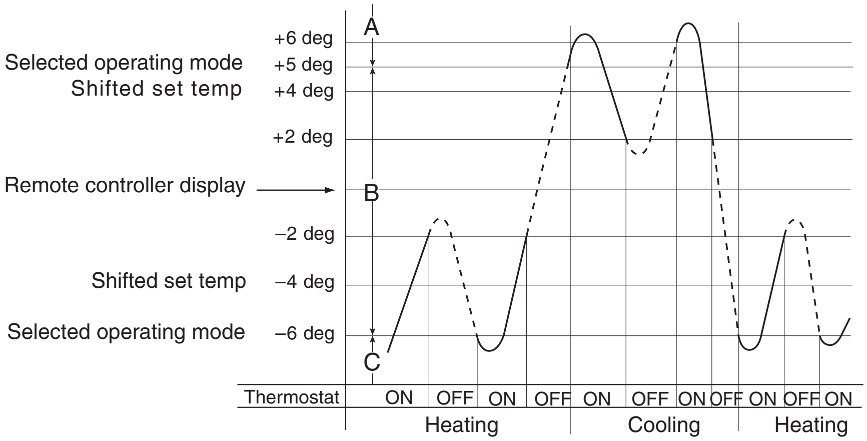
(3) Operating mode changes (heating → cooling, cooling → heating) which occur during operation as a result of temperature changes are handled as shown below.
- Heating → cooling: Room temperature → Shifted set temperature (set temperature + 4°F + 1°F
- Cooling → heating: Room temperature → Shifted set temperature (set temperature – 4°F – 2°F

Example: Temperature set on the remote controller is 68°F.

| | Operating mode change | Shifted set temp. |
|---|---|---|
| 1 | Heating → Cooling | 68 + 4 + 1 = 73°F or higher (*2) |
| 2 | Cooling → Heating | 68 – 4 – 2 = 62°F or lower |

*2: During heating operation when the body sensor is used, a temperature shift is applied to the intake temperature detected by the sensor, in consideration for the difference in temperature at the top and bottom of the room. (Refer to the "Room Temperature Control" item.) If this intake shift temperature is 7°F, then the heating → cooling change occurs when the temperature detected by the body sensor is 80°F or higher.

(4) Cooling (heating) operation does not change if the room temperature changes from area C → A (or A → C) within 10 minutes after the compressor turns OFF. (Monitoring mode is excepted.)

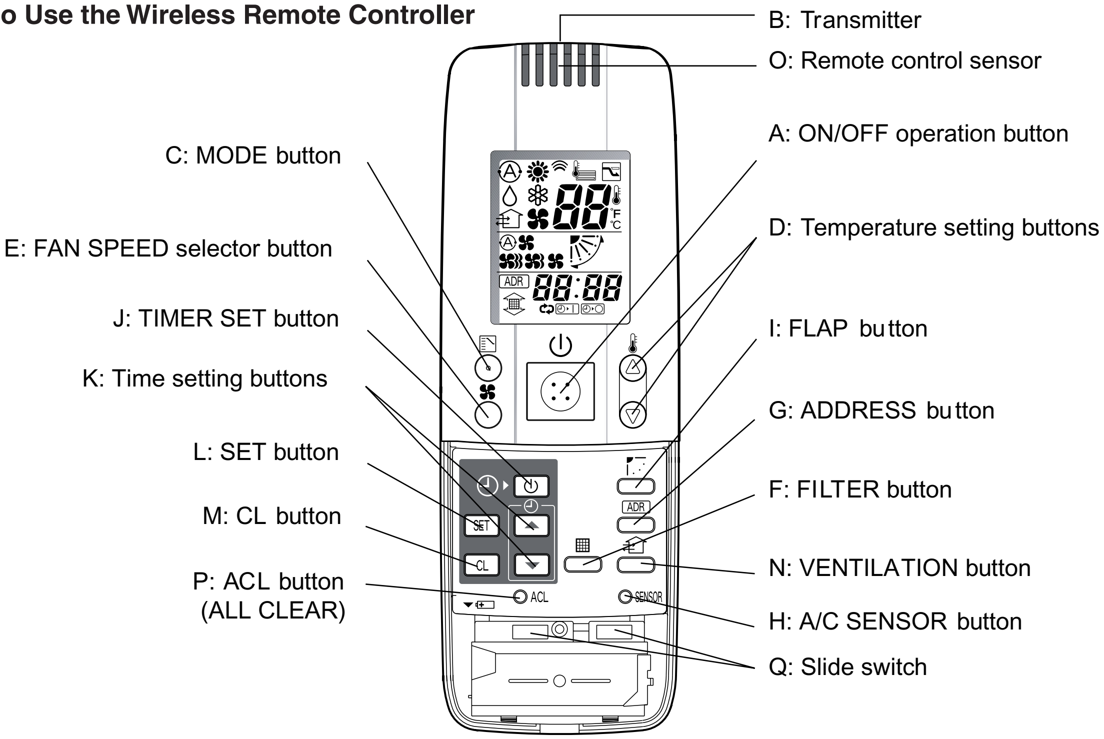


## 2. Wireless Remote Controller

### Optional Controller (Remote Controller)

### Wireless Remote Controller / CZ-RWSU1U (for X Type) / CZ-RWST1U (for A, T Type) / CZ-RWSC1U (for U, D Type) / CZ-RWSK1U (for K Type) / CZ-RWSY1U

### 2-1. How to Use the Wireless Remote Controller


B: Transmitter
O: Remote control sensor
C: MODE button
A: ON/OFF operation button
E: FAN SPEED selector button
D: Temperature setting buttons
J: TIMER SET button
I: FLAP button
K: Time setting buttons
G: ADDRESS button
L: SET button
F: FILTER button
M: CL button
N: VENTILATION button
P: ACL button
(ALL CLEAR)
H: A/C SENSOR button
Q: Slide switch
ADR
88:88
SET
CL
ACL
SENSOR

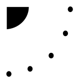
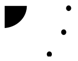
**NOTE** The illustration above pictures the wireless remote control unit after the cover has been lowered and removed.

| | |
|---|---|
| **A: ON/OFF operation button** | This button is for turning the air conditioner on and off. |
| **B: Transmitter** | When you press the buttons on the wireless remote control unit, the ≋ mark appears in the display to transmit the setting changes to the receiver in the air conditioner. |
| **C: MODE button** | Use this button to select one of the following five operating modes. |
| **(AUTO)** | Ⓐ : Used to automatically set cooling or heating operation. Only for single heat pump type<br>(Temperature range: 62 ~ 80°F) |
| **(HEAT)** | ☀ : Used for normal heating operation. Only for heat pump type<br>(Temperature range: 60 ~ 78°F) |
| **(DRY)** | 💧 : Used for dehumidifying without changing the room temperature.<br>(Temperature range: 64 ~ 86°F) |
| **(COOL)** | ❄ : Used for normal cooling operation.<br>(Temperature range: 64 ~ 86°F) |
| **(FAN)** | ✤ : Used to run the fan only, without heating or cooling operation. |
| **D: Temperature setting buttons** | ▲ : Press this button to increase the temperature setting.<br>▼ : Press this button to decrease the temperature setting. |
| **E: FAN SPEED selector button** | |
| **(AUTO)** | Ⓐ✤ : The air conditioner automatically decides the fan speeds. |
| **(HI)** | ✤))) : High fan speed |
| **(MED)** | ✤)) : Medium fan speed |
| **(LO)** | ✤ : Low fan speed |

Continued

## 2. Wireless Remote Controller

<table>
<tr><td><b>F: FILTER button</b></td><td>If a separately installed signal receiver is being employed, this button is used to turn off its filter lamp. When the filter lamp has lighted, first clean the filter, and then press the FILTER button to turn off the filter lamp. When a wired remote control unit and wireless remote control unit are both used, the filter sign on the wired remote control unit will appear. When this happens, first clean the filter, and then press the FILTER button on one of the remote control units to turn off the filter sign.</td></tr>
<tr><td><b>G: ADDRESS button</b></td><td>When a multiple number of indoor units that can be operated by the wireless remote control unit have been installed in the same room with a multi-unit or single-unit installation, this button enables addresses to be set in order to prevent the sending of signals to the wrong indoor unit. Each of up to six indoor units can be controlled separately using its own wireless remote control unit by matching the number of the address switch on the operation area of the indoor unit and the number used for the address of its remote control unit. (The indoor units cannot be controlled separately when they are used in a flexible combination format, simultaneous operation of multi units format or any other such format since they will all operate at the same time.)</td></tr>
<tr><td><b>NOTE</b></td><td>When the batteries are replaced, the address setting returns to "ALL", so you must make the setting again.</td></tr>
<tr><td><b>H: A/C SENSOR button</b></td><td>When you press this button (use a narrow-tipped object such as a ballpoint pen), the 🌡 indication will disappear on the display. The room temperature is detected by the sensor which is built into the indoor unit and the air conditioner is controlled accordingly.</td></tr>
<tr><td><b>NOTE</b></td><td>If the remote control is located near a heat source, such as a space heater or in direct sunlight, press the A/C SENSOR button to switch to the sensor on the indoor unit.</td></tr>
<tr><td><b>I: FLAP button</b></td><td>1. Use this button to set the airflow direction to a specific angle.<br>The airflow direction is displayed on the remote control unit.
<table>
<tr><th>Operation mode</th><th>Number of airflow direction settings</th></tr>
<tr><td>❄ (COOL) or 💧 (DRY)</td><td>3</td></tr>
<tr><td>☀ (HEAT) or ✤ (FAN)</td><td>5</td></tr>
<tr><td>Ⓐ (AUTO)</td><td></td></tr>
<tr><td>Cooling mode:</td><td>3</td></tr>
<tr><td>Heating mode:</td><td>5</td></tr>
</table></td></tr>
<tr><td><b>⚠ CAUTION</b></td><td><b>In the Cool mode and Dry mode, if the flaps are set in a downward position, condensation may form and drip around the vent.<br>Do not move the flap with your hands.</b></td></tr>
<tr><td><b>NOTE</b></td><td>This function is available only for models X, XM, A, T and K.</td></tr>
<tr><td><b>(SWEEP)</b></td><td>2. Use this button to make the airflow direction sweep up and down automatically.<br>Press this button several times until the ↗ symbol appears on the display.<br><b>To stop the swing operation</b><br>Press the FLAP button again during the flap swing operation to stop the flap at the desired position. Then, the airflow can be set from the top position by pressing the FLAP button again.</td></tr>
</table>

<table>
<tr><td><br><br><br><br><br>NOTE</td><td><b>Indicator when swing operation is stopped</b>
<table>
<tr><th>Fan and heating</th><th>Cooling and drying</th></tr>
<tr><td></td><td></td></tr>
</table>
During cooling and drying, the flap does not stop at the downward position.<br>Even if the flap is stopped at the downward position during the swing operation, it does not stop until it moves to the third position from the top.<br><br>This function is available only for models X, XM, A, T and K.</td></tr>
<tr><td><b>J: TIMER SET button</b><br><b>(OFF Timer)</b><br><b>(OFF Cycle Timer)</b><br><b>(ON Timer)</b></td><td>Use this button while the unit is operating to switch between timer settings.<br>◷▸○ : The air conditioner stops after a preset time elapses.<br>⟲ ◷▸○ : The air conditioner always stops after a preset time elapses.<br>◷▸| : The air conditioner starts after a preset time elapses.</td></tr>
<tr><td><b>K: Time setting buttons</b></td><td>▲ : Press this button to increase the time.<br>▼ : Press this button to decrease the time.</td></tr>
<tr><td><b>L: SET button</b></td><td>Use this button to set the timer.</td></tr>
<tr><td><b>M: CL button</b></td><td>Use this button to clear the timer setting.</td></tr>
<tr><td><b>N: VENTILATION button</b></td><td>This is used when a ventilation fan (available commercially) is connected. Pressing the VENTILATION button turns the fan on and off. The ventilation fan also turns on and off when the air conditioner unit is turned on and off. (The display of the remote control unit shows "⌂" while the ventilation fan is running.)<br>* If the VENTILATION button is held down for 4 or more seconds when the batteries have been replaced, "⌂" appears on the display, and the ventilation fan can be used.</td></tr>
<tr><td><b>O: Remote control sensor</b></td><td>This detects the temperature around the remote control unit when the remote control unit position has been selected using the sensor button.</td></tr>
<tr><td><b>P: ACL button (ALL CLEAR)</b></td><td>Puts the wireless remote control unit into pre-operation status. This is used after the batteries have been replaced or when the slide switch setting has been changed.</td></tr>
<tr><td><b>Q: Slide switch</b></td><td>This switch is for setting the operation mode of the indoor unit and setting the flaps.</td></tr>
</table>

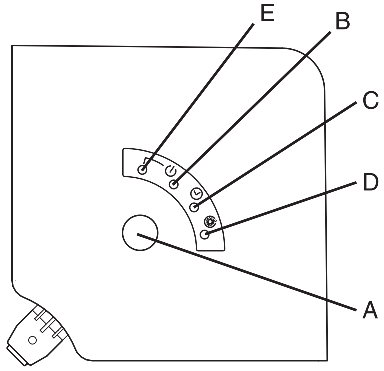
**NOTE**

- The wireless remote control unit sends the temperature signal to the air conditioner regularly at five-minute intervals. If the signal from the wireless remote control unit stops for more than ten minutes due to the loss of the wireless remote control unit or other trouble, the air conditioner will switch to the temperature sensor which is built into the indoor unit and control the room temperature. In these cases, the temperature around the wireless remote control unit may differ from the temperature detected at the air conditioner's position.
- When low fan speed is selected and the air conditioner is in cooling operation at a low outdoor temperature of less than 50°F, the air conditioner may automatically switch to medium fan speed to prevent freezing.

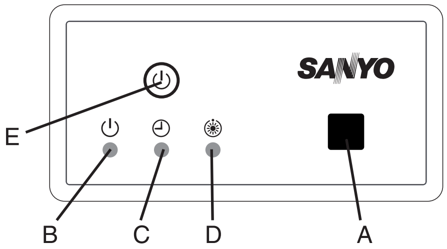
## 2-2. Receiver

The signal receivers with the exception of the separately installed signal receiver are mounted on the indoor units.

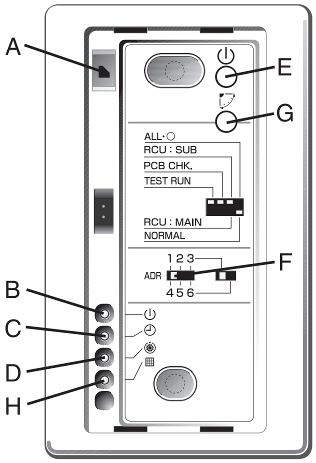
**X, XM types**



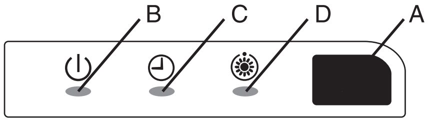
**A, T types**



**Separately installed signal receiver (U, D types)**



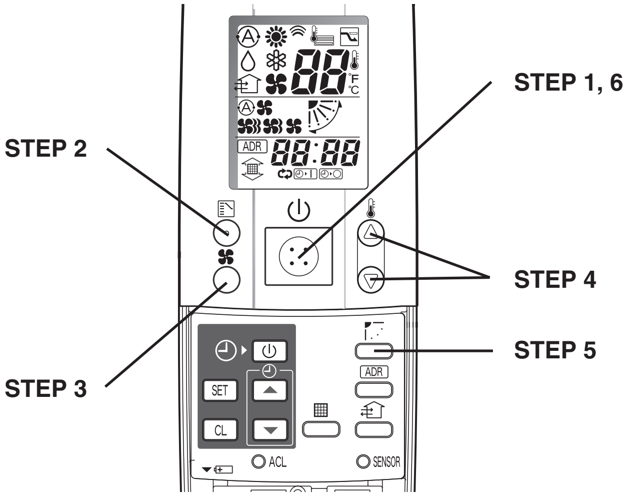
**K type**



| | |
|---|---|
| **A: Receiver** | This section picks up infrared signals from the wireless remote control unit (transmitter). |
| **Indication lamps** | One of these lamps will blink when trouble has occurred. When an indicator lamp starts to blink, refer to "Trouble Diagnosis" on page 2-14. |
| **B: Operation lamp** | This lamp lights when the appliance is turned on. |
| **C: Timer lamp** | This lamp lights when the system is being controlled by the timer. |
| **D: Standby lamp** | • This lamp lights at the following times during heating operations: When operation has started, when the thermostat has been activated, during defrosting operation.<br>• The lamp blinks when trouble has occurred. |
| **E: Emergency operation button** | This is used when operation cannot be performed due to trouble with or loss of the wireless remote control unit. |
| **F: ADDRESS switch** | This switch is used in order to prevent the sending of signals to the wrong indoor unit when a multiple number of indoor units that can be operated by the wireless remote control units have been installed in the same room. |
| **G: SWING button** | When this button is pressed, the airflow sweeps up and down automatically. |
| **H: FILTER lamp** | This lamp lights to indicate that it is time to clean the filter. |

- **If two beeps are heard, the operation lamp among the indication lamps has lighted and the timer lamp and standby lamp blink alternately. In cases where heat pump models are used, this indicates a Cooling/Heating mode mismatch and, as such, operation in the desired mode cannot be performed.**
  **(The same beeps will be heard and the same operation lamps will light when auto cooling/heating has been selected on a model which does not have the auto cooling/heating function.)**
- **When local operation has been set to disable because the centralized control mode is established, for instance, pressing the ON/OFF operation button, MODE button or temperature setting buttons results in the sounding of five beeps, and the attempted change in the operation will not be accepted.**

### 2-3. Operation



**NOTE**

- To warm up the system, the power mains must be turned on at least five (5) hours before operation.

| | | |
|---|---|---|
| **STEP 1** | **To start the air conditioner:** | Press the operation button (ON/OFF button). |
| **STEP 2** | **Setting the mode:** | Press the MODE button to select the mode of your choice.<br>[ Ⓐ (AUTO), ☀ (HEAT), 💧 (DRY), ❄(COOL) or ✤(FAN) ] |
| **STEP 3** | **Setting the fan speed:** | Press the FAN SPEED selector button to select the fan speed of your choice.<br>[Ⓐ✤(AUTO), ✤ (HI.), ✤ (MED.) or ✤ (LO.) ]<br>If AUTO is selected, the fan speed switches automatically. |
| **STEP 4** | **Setting the temperature:** | Use the ▼ or ▲ button as appropriate to change the temperature setting as desired.<br>( ▼ reduces the temperature, and ▲ increases the temperature. )<br>* The temperature cannot be set during FAN mode operation. |
| **STEP 5** | **Setting the airflow direction:** | When more than one indoor unit is connected, the UNIT button is used first to select a unit. Then use the FLAP button to set the airflow direction to a specific angle or to sweep. |
| **STEP 6** | **To stop the air conditioner:** | Press the operation button (ON/OFF button) again. |

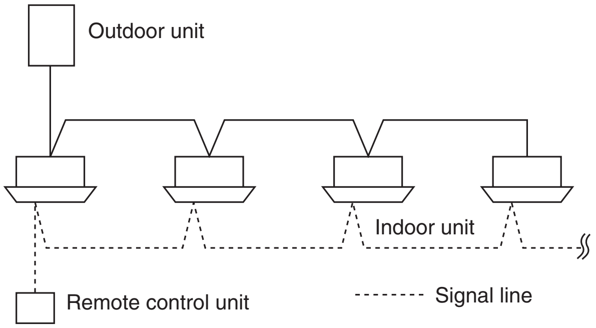
**Automatic heating and cooling**

The air conditioner automatically performs heating and cooling operation based on the difference between the temperature setting and room temperature. All indoor units in the same refrigerant system can be operated with a single group control.

**Simultaneous operation of multiple units (Group control)**

Group control is suitable for air conditioning of a large room using multiple air conditioning units.

- One remote control unit can control up to eight indoor units.
- All indoor units have the same settings except for the airflow direction.
- The temperature sensors at the indoor unit side are used.

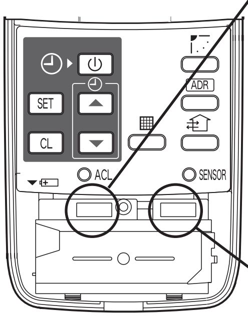


### 2-4. Using the Wireless Remote Control Unit

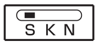
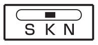
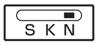
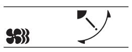
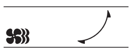
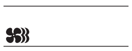
**Slide switch** This is used to set the operation mode of the indoor units and to set the flaps.

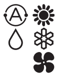
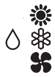
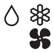
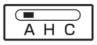
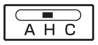
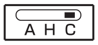
- Depending on the indoor unit used, the operation display and airflow direction display settings will differ as shown below.
- Use a pointed implement to change the switch position.
- When the switch position has been changed, press the ACL button.

* For details on the flap functions, refer to the operating instructions of the indoor unit used.



With the battery cover removed

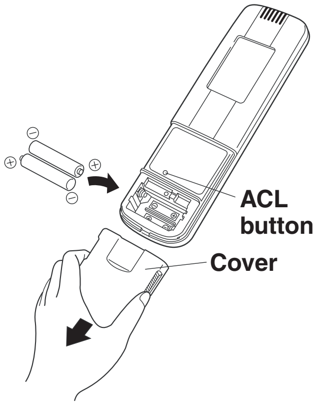
| | Model which supports different flap settings | Swing-only model | No-flap model |
|---|---|---|---|
| Slide switch position |  |  |  |
| Flap display on wireless remote control unit |  |  |  |

| | Heat pump (with auto cooling/heating function) | Heat pump (without auto cooling/heating function) | Cooling only |
|---|---|---|---|
| Operation mode display on wireless remote control unit |  |  |  |
| Slide switch position |  |  |  |

- Before use, check that the slide switch has been set to the position shown in the figure above. For details on how to set the slide switch, consult your dealer.

**How to install batteries**

1. Slide the cover in the direction indicated by the arrow and remove it.
2. Install two AAA alkaline batteries. Make sure the batteries point in the direction marked in the battery compartment**.**
3. Use a pointed implement to press the ACL button.



- The batteries last about a year, depending on how much you use the wireless remote control unit. Replace the batteries when the wireless remote control unit's display fails to light, or when the remote control cannot be used to change the air conditioner's settings.
- When the batteries are to be replaced, make sure that both batteries are new and that the same kind of battery is used.
- Remove the batteries if the wireless remote control unit is not going to be used for a prolonged period.
- Dispose of the used batteries at the designated location.

**How to use the wireless remote control unit**

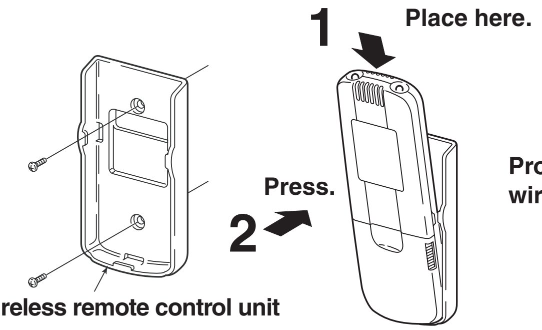
- Point the wireless remote control unit's transmitter at the signal receiver. If the signal is received properly, a beep is heard. (Two beeps are heard only when operation starts up.)
- Signals can be received over a distance of approximately 26 ft. This distance is approximate: it may be slightly more or less depending on how much charge remains in the batteries and on other factors.
- Ensure that the signals will not be blocked by any objects positioned between the transmitter and signal receiver.
- Avoid placing the wireless remote control unit where it will be exposed to direct sunlight or in the direct path of the air blown out from the air conditioner, near a heating appliance, etc.
- Do not drop, throw or wash the wireless remote control unit.
- Signal reception may not be accepted in rooms with fluorescent lights that use the electronic instantaneous lighting system (rapid start system) or inverter system.
  For further details, contact your dealer.

## 2. Wireless Remote Controller

**When mounting the wireless remote control unit on a wall for use**

- Before mounting the wireless remote control unit on the wall, place the unit at the mounting position, press the ON/OFF operation button and check that the signals are received properly.
- To remove the wireless remote control unit, disengage it by pulling it toward you.

**Secure the installation fitting of the wireless remote control unit using the screws.**



**Procedure for installing the wireless remote control unit**

**Operating tips**

- **Do not operate the wireless remote control unit too far away from the signal receiver.**
  Doing so may cause operational errors.
  Make absolutely sure that the wireless remote control unit and signal receiver are both in the same room.
- **When operating the wireless remote control unit, point it directly at the signal receiver.**
  A beep is heard when a signal is received properly.
- **Avoid places where the wireless remote control unit will be obscured by curtains, etc.**
  Remove it before operation.

### 2-5. Address Settings

When a multiple number of indoor units that can be operated by the wireless remote control unit have been installed in the same room with a multi-unit or single-unit installation, this button enables addresses to be set in order to prevent the sending of signals to the wrong indoor unit. Each of up to six indoor units can be controlled separately using its own wireless remote control unit by matching the number of the address switch on the operation area of the indoor unit and the number used for the address of its wireless remote control unit. (The indoor units cannot be controlled separately when they are used in a flexible combination format, simultaneous operation of multi units format or any other such format since they will all operate at the same time.)
The signal receiver has an address switch for signal reception, and the wireless remote control unit has an address switch for signal transmission.

**How to check the addresses**

When the ADDRESS button on the wireless remote control unit is pressed, the current address appears on the wireless remote control unit's display. The buzzer sounds if the address displayed matches the signal receiver's address. (The buzzer always sounds if “ALL” appears as the address display.)
If “ALL” appears as the address display, operations can be performed irrespective of the signal receiver's address. Point the wireless remote control unit at the signal receiver of the unit to be operated, and send the signal.

**How to set the matching address**

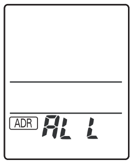
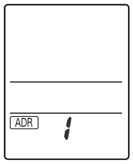
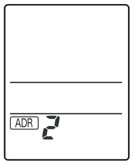
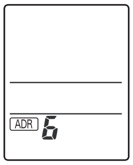
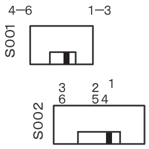
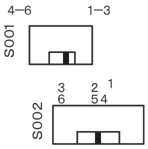
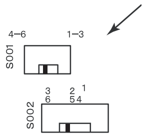
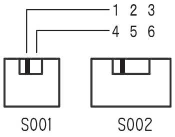
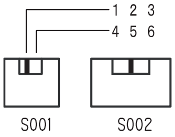
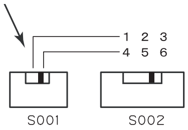
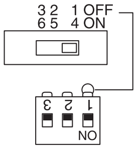
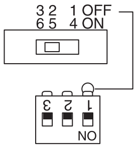
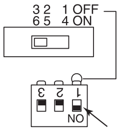
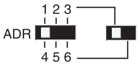
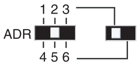
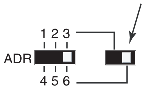
**Wireless remote control unit’s address setting**

1. When the ADDRESS button is held down for 4 or more seconds, “ ADR ” lights on the wireless remote control unit's display, and the current address blinks.
2. Each time the ADDRESS button is now pressed, the address changes by one setting in the following sequence: ALL →1 →2 → 3..→ 6→ ALL.
   Select the setting which matches the setting of the address switch in the operation area of the indoor unit to be operated.
3. When the SET button is now pressed, the address stops blinking and lights instead, and it remains on the display for 5 seconds.
   The buzzer sounds if the setting matches the setting of the address switch in the operation area of the indoor unit.

**NOTE**

When the batteries are replaced, the address setting returns to “ALL ”.

## 2. Wireless Remote Controller

| **Wireless remote control unit address displays** |  |  |  | …… |  |
|---|---|---|---|---|---|
| **X type**<br>Position of address switch on signal receiver (inside indoor unit) | * The address switch in the operation area may be set to any position. |   4–6<br>1–3<br>S001<br>3 6<br>2 1 5 4<br>S002 |   4–6<br>1–3<br>S001<br>3 6<br>2 1 5 4<br>S002 | …… | For positions 1, 2 and 3, set the knob to the left; conversely, for 4, 5 and 6, set the knob to the right.<br>  4–6<br>1–3<br>S001<br>3 6<br>2 1 5 4<br>S002 |
| **A, T types**<br>Position of address switch on signal receiver (inside indoor unit) | * The address switch in the operation area may be set to any position. |   1 2 3<br>4 5 6<br>S001<br>S002 |   1 2 3<br>4 5 6<br>S001<br>S002 | …… | For positions 1, 2 and 3, set the knob to the left; conversely, for 4, 5 and 6, set the knob to the right.<br>  1 2 3<br>4 5 6<br>S001<br>S002 |
| **K type**<br>Position of address switch inside indoor unit | * The address switch in the operation area may be set to any position. |   3 2 1 OFF<br>6 5 4 ON<br>1 2 3<br>ON |   3 2 1 OFF<br>6 5 4 ON<br>1 2 3<br>ON | …… |   3 2 1 OFF<br>6 5 4 ON<br>1 2 3<br>ON<br>For positions 1, 2 and 3,set the knob upward (1); conversely, for 4, 5 and 6, set the knob downward (ON). |
| **U, D types**<br>Position of address switch in signal receiver | * The address switch in the operation area may be set to any position. |  |  | …… | For positions 1, 2 and 3, set the knob to the left; conversely, for 4, 5 and 6, set the knob to the right.<br> |

* Wireless remote control unit for XM type does not have the function of address switch.

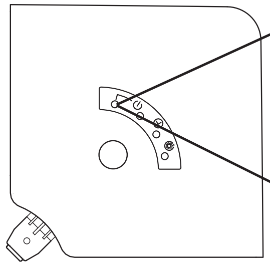
### 2-6. Emergency Operation

In any of the following events, use the Emergency operation button to operate the air conditioner on a makeshift basis.

- When there is no charge remaining in the wireless remote control unit's batteries
- When the wireless remote control unit has failed
- When the wireless remote control unit has been lost or misplaced

---

**X, XM types** Initiate operation using the Emergency operation button in the operation area of the indoor unit.



**Operation**

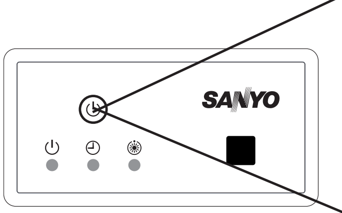
Press the Emergency operation button.
The air conditioner initiates a cooling operation when its operation is started up at a room temperature of 75°F or above.
Conversely, it initiates a heating operation when its operation is started up at a room temperature below 75°F.

**Shutdown**

Press the Emergency operation button once more.

---

**A, T types** Initiate operation using the Emergency operation button in the signal receiver on the indoor unit.



**Operation**

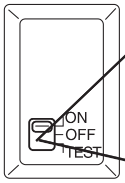
Press the Emergency operation button.
The air conditioner initiates a cooling operation when its operation is started up at a room temperature of 75°F or above.
Conversely, it initiates a heating operation when its operation is started up at a room temperature below 75°F.

**Shutdown**

Press the Emergency operation button once more.

---

**K type** Initiate operation using the Emergency operation button in the operation area of the indoor unit.



**Operation**

Set the ON/OFF operation switch to “OFF” first.
Then set it to “ON. ”
If a heat pump is used, the air conditioner initiates a cooling operation when its operation is started up at a room temperature of 75°F or above or it initiates a heating operation when its operation is started up at a room temperature below 75°F.

**Shutdown**

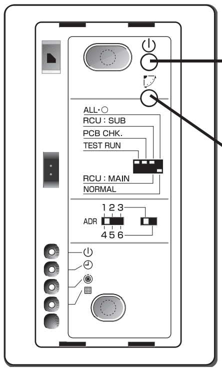
Set the ON/OFF operation switch to “OFF.”

**NOTE**

- TEST is used to initiate a trial run when the air conditioner is first installed. It is not used under normal circumstances.
- To restart the wireless remote control unit's operation, the ON/OFF operation switch must be set to ON without fail. If it is kept at the OFF setting, the signals from the wireless remote control unit will not be accepted.

## 2. Wireless Remote Controller

**U, D types** Initiate operation using the Emergency operation button in the signal receiver.



**1.** Press the Emergency operation button.
The air conditioner initiates a cooling operation when its operation is started up at a room temperature of 75°F or above.
Conversely, it initiates a heating operation when its operation is started up at a room temperature below 75°F.

**2.** When the SWING button is pressed, the air direction is automatically switched from upward to downward or vice versa.

| **Shutdown** |
|---|
| Press the Emergency operation button once more. |

### 2-7. Trouble Diagnosis

Check out the following points before requesting service.

| | Trouble | Possible Cause | Remedy |
|---|---|---|---|
| Check again. | The air conditioner does not run even when the ON/OFF operation switch has been set to ON. | Is the air conditioner in the shutdown mode or was the switch operated after a power failure? | Press the wireless remote control unit's ON/OFF operation button again. |
| | | How about the local power switch? | If it was off, set it now to on. |
| | | Have any of the fuses blown? | If a fuse has blown, contact your dealer. |
| | | Is the ON timer operation mode established? | Clear the timer operation. |
| | | If the signal receiver's NORMAL/ALL OFF switch set to "ALL OFF"? | If it is, set it to the "NORMAL" position and cancel the operation. |
| | | Have the wireless remote control unit's batteries run down? | If they have, replace them with new ones. |
| | | Do the indication lamps show a cooling/heating mismatch or is the auto cooling/heating function not available? | Change the operation mode. |
| Auto cooling/heating or heating appears on the display even though the air conditioner is a cooling-only model. | | | Change the setting of the wireless remote control unit's slide switch. (See page 2-9) |

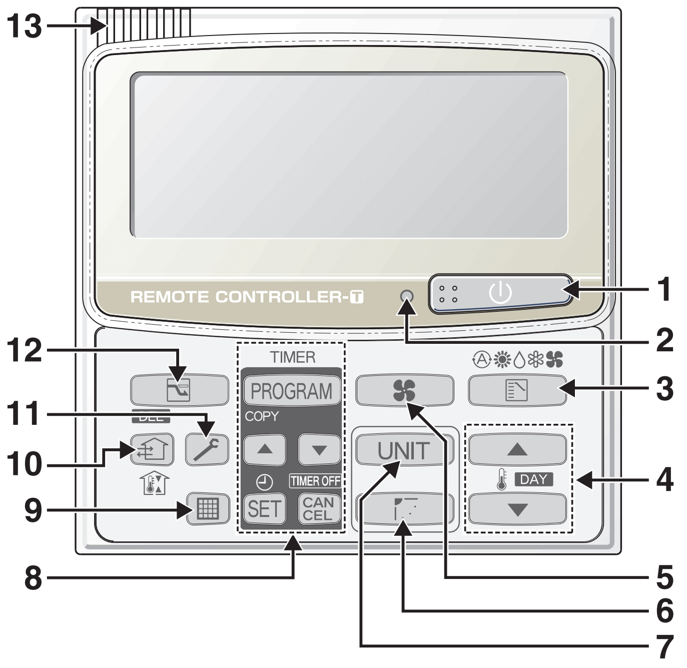
| | Trouble<br>(An indicator lamp is blinking.)<br>Operation | Timer | Preparing for operation | Possible Cause |
|---|---|---|---|---|
| Contact your dealer. | ☼ | ● | ● | • Some kind of trouble has occurred in communication between the signal receiver and indoor unit. Alternatively, the wrong address has been set when a wired remote control unit is used. |
| | ● | ● | ☼ | • Some kind of trouble has occurred in communication between the indoor unit and outdoor unit. |
| | ● | ☼ | ☼ | • The indoor unit's protection device has been activated. Alternatively, the auto flap connector of the ceiling panel has been disconnected. |
| | ☼ | ● | ☼ | • The outdoor unit's protection device has been activated. |
| | ☼ | ☼ | ● | • Something is wrong with the temperature sensor. |
| | ● | ☼ | ● | • The outdoor unit's compressor has been protected. |
| | ☼ | ☼ | ☼ | • A trial run mode is underway. Set the trial run mode to Off. |

If the trouble persists even after performing the checks recommended above, shut down the air conditioner's operation, set the local power switch to OFF, and contact your dealer with the model number and trouble symptoms. You must NOT attempt to make repairs yourself due to the dangers involved. If one or more of the indication lamps is blinking, give this information to the dealer as well.

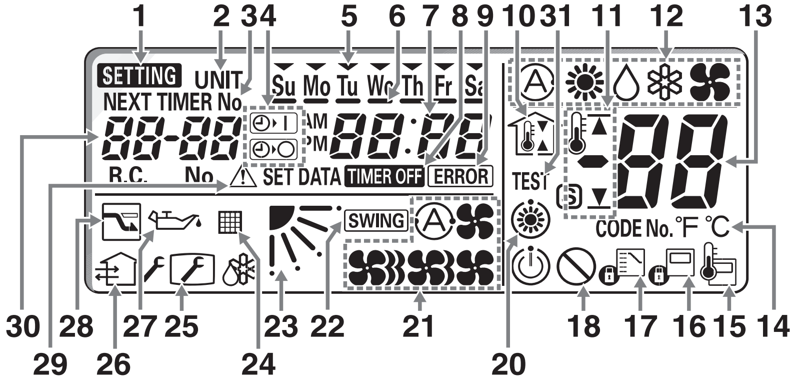
# 3. Timer Remote Controller

## 3-1. How to Use the Timer Remote Controller

**Operating buttons**


13
1
12
2
3
11
10
4
9
8
5
6
7
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
TIMER OFF
SET
CAN CEL
DAY

**Display**


1
2
3
4
5
6
7
8
9
10
31
11
12
13
SETTING
UNIT
NEXT TIMER No
Su Mo Tu We Th Fr Sa
AM
PM
B.C.
No.
SET DATA
TIMER OFF
ERROR
TEST
SWING
CODE No.
°F °C
30
28
27
25
23
22
21
18
17
16
15
14
29
26
24
20

### 3-2. Names and Operations

**Operation Section** **(Refer to the previous page)**

1. **Start/Stop button**
   Pushing this button starts, and pushing again stops the unit.
2. **Operation lamp**
   The lamp is turned on when an air conditioner is in operation.
   This lamp blinks when an error occurs or a protective device is activated.
3. **Mode Select button**
   Pushing this button to select an operation mode. (AUTO Ⓐ /HEAT☀ /DRY💧 /COOL❄ /FAN✤).
4. **Temperature setting buttons**
   Changing the temperature setting.
5. **FAN speed button**
   Changing the fan speed.
6. **Swing/Air direction button *1**
   Use this button to set the auto swing or air direction to a specific angle.
7. UNIT **Unit Select button**
   When more than one indoor unit is operated by one remote control unit, this button is used to select a unit when adjusting the air direction.
8. **Timer setting buttons**
   (☞ Weekly Program Function)
9. ▦ **FILTER reset button**
   Use this button to reset the filter sign.
   When ▦ is displayed, press this button after cleaning the filter.
10. ⌂ **Ventilation button**
    Use this button when you installed a fan available in the market. Pressing this button turns on and off the fan.
    When turning off the air conditioner, the fan will be also turned off.
    (While the fan is operating, ⌂ will appear in the display.)
    *If ⊘ is displayed on the LCD of the remote control unit when pressing the ventilation button, no fans are installed.
11. **Inspection button**
    Do not use this button.
12. **Sleeping button**
    (☞ Sleeping Function)
13. **Remote control sensor**
    Normally, the temperature sensor of the indoor unit is used to detect the temperature. However, it is also possible to detect the temperature around the remote control unit.

*1 Do not move the flap (vertical airflow adjustment board) with your hand.
- ● The flap is automatically directed down when the unit is stopped.
- ● The flap is directed up during the HEAT standby. The flap starts swinging after the HEAT standby is cancelled, although the AUTO flap indication on the remote control unit is displayed during the HEAT standby.

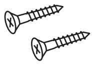
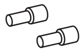
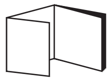
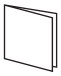
# 3. Timer Remote Controller

**Display Section** **(Refer to the page 2-15)**

1. **SETTING SETTING indication**
   Appears when the timer program is being set.
2. **UNIT UNIT indication**
   Indicates the unit No. of the indoor unit which is selected with the Unit Select button, or the unit in which an abnormality occurs.
3. **TIMER No. TIMER No. indication**
   Appears when the time program is being set.
4. **Timer program**
   ⏲▸I: The indoor unit starts operation at the programmed time.
   ⏲▸O: The indoor unit stops operation at the programmed time.
5. **▼ Today's day of the week**
   Indicates today's day of the week.
6. **▬ Program schedule indication**
   Appears under days that are scheduled for program operation.
7. **Present time**
   Displays the present time on a 24-hour clock. Also, displays settings in the various setting modes.
8. **TIMER OFF TIMER OFF indication**
   Displayed when the timer has been turned OFF.
9. **ERROR ERROR indication**
   Displayed when a mistake is made during timer setting.
10. **Outing indication (☞ Outing function)**
    Appears when the outing function is set.
11. **Upper and lower limit indication of the outing function**
    ▲: Indicates the upper limit of the temperature
    ▼: Indicates the lower limit of the temperature
12. **Operation Mode indication**
    Displays the selected operation mode. (AUTOⒶ /HEAT☀ /DRY◊ /COOL❄ /FAN✤ ).
13. **Temperature indication**
    Indicates the set temperature.
14. **°F / °C temperature unit indication**
15. **Remote control sensor indication**
    Appears when the remote control sensor is used.
16. **Centralized control indication**
    Appears when operated in centralized control. If the remote control operation is not permitted to the remote unit, when the Start/Stop button, Mode Select button or Temperature setting button is pressed, the icon flashes and rejects the change.
17. **Operation mode change control indication**
    Displays when an operation mode is entered by the remote control unit, while another operation mode has been already selected. This indicates that the operation mode cannot be changed.
18. **⊘ Disabled Feature indication**
    Displayed if the selected feature was disabled during installation.
20. **Heating standby mode indication**
    Appears when the fan of the indoor unit is stopped or in low fan speed.
21. **Ⓐ✤ / ✤))) / ✤)) / ✤ Fan mode select indication**
    The selected fan mode is displayed.
22. **SWING SWING indication**
    Appears while the flap swings.
23. **Flap position indication**
    Indicates the flap position.
24. **▦ Filter indication**
    Appears when filter needs cleaning. Clean the filter.
25. **Inspection indication**
    Appears when the protective device is activated or when an abnormality occurs.
26. **Ventilation indication**
    Appears when a fan available in the market is installed and is operating.
27. **Oil indication**
    Appears when the engine oil needs to be changed. (Appears when the gas heat pump air conditioner is used.)
28. **Sleeping**
    Appears during the sleeping function.
29. **⚠ CAUTION**
    Appears when the protective device is activated or when an abnormality occurs.
30. **Unit No. indication**
    Indicates the unit No. of the selected indoor unit.
31. **TEST TEST indication**
    Appears while in test operation.

### 3-3. Installation Manual for Timer Remote Controller

Accessories for remote controller switch

| ① Remote controller | ② Wood screws | ③ Wire joints | ④ Operation manual | ⑤ Installation manual |
|---|---|---|---|---|
| (with 8 in. wire) |  |  |  |  |

### 3-4. How to install the Remote Controller

CAUTION

- Do not supply power to the unit or try to operate it until the tubing and wiring to the outdoor unit is completed.
- Do not twist the control wiring with the power wiring or run it in the same metal conduit, because this may cause malfunction.
- Install the remote controller away from sources of electrical noise.
- Install wiring correctly(incorrect wiring will damage the equipment).
- Install a noise filter or take other appropriate action if electrical noise affects the power supply circuit of the unit.
- When wiring, do not connect the remote controller wires to the adjacent terminal block for the power wiring. Otherwise, the unit will break down.
- Use shielded wires for remote control wiring and ground the shield on indoor unit sides. (Fig. 2-1) Otherwise misoperation due to noise may occur.

The mounting position for the remote controller should be located in an accessible place for control.
Never cover the remote controller or recess it into the wall.

(1) When you open the decorative cover (Fig. 2-4), you will see 2 gaps under the remote controller. Insert a coin into these gaps and pry off the back case.
(2) Attach the back case with the 2 wood screws ② provided. Using a screwdriver, push open the cut-outs on the back case. These holes are for screws. (Fig. 2-5)
(3) Connect the remote controller wiring (2 wires) correctly to the corresponding terminals in the electrical component box of the indoor unit.
(4) To finish, fit the back tabs of the case into the remote controller and mount it.

- ■ Basic Wiring Diagram
  - Connection diagram

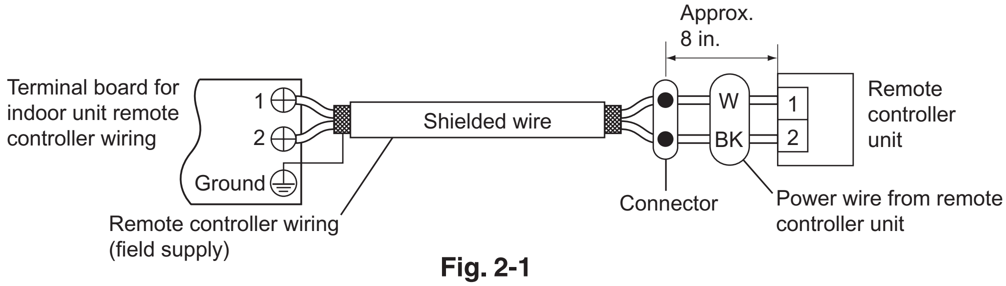

Approx.
8 in.
Terminal board for indoor unit remote controller wiring
1
2
Ground
Shielded wire
W
BK
1
2
Remote controller unit
Remote controller wiring (field supply)
Connector
Power wire from remote controller unit

Fig. 2-1

## 3. Timer Remote Controller

- Use AWG#20 to AWG#16 wires.
  Remote controller wiring can be extended to a maximum of 1640 ft.

(1) Strip the insulation to approximately 35/64" from the ends of the wires that will be connected.
(2) Twist together the 2 wires and create a crimp connection at the wire joint.
(3) If a special crimping tool is not used, or if the connection is soldered, insulate the wires using insulation tape.

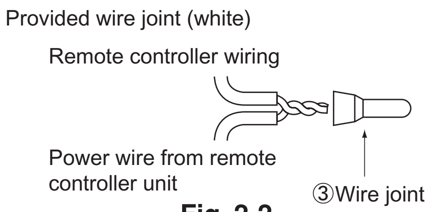

Provided wire joint (white)
Remote controller wiring
Power wire from remote controller unit
③Wire joint

**Fig. 2-2**

### 3-5. Group Control Using 2 Remote Controllers

It does not matter which of the 2 remote controllers you set as the main controller. When using multiple remote controllers (up to 2 can be used), one serves as the main remote controller and the other as the sub-remote controller.

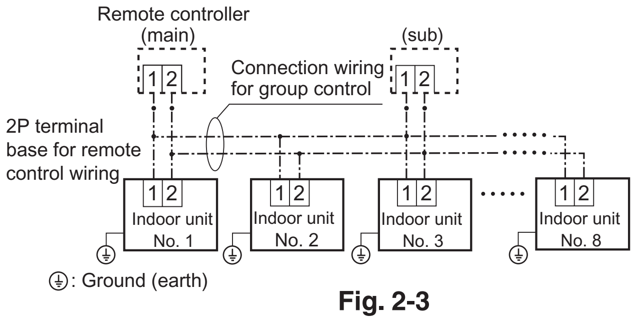

Remote controller (main)
(sub)
1 2
1 2
Connection wiring for group control
2P terminal base for remote control wiring
1 2
Indoor unit No. 1
1 2
Indoor unit No. 2
1 2
Indoor unit No. 3
1 2
Indoor unit No. 8
⏚: Ground (earth)

**Fig. 2-3**

### 3-6. Remote Controller Setting Mode

To set the remote controller main/sub setting or change the sensor, follow the steps below.

①Press both [⊡] and [SET] buttons on the remote controller for more than 4 seconds together.
②Select CODE No. with [▲] / [▼] (🌡) buttons.
③Change DATA with [▲] / [▼] (TIMER) buttons.
④Press [SET] . Finally, press [🔧] .
* DATA is memorized in the RCU. (DATA setting will not be changed even when the power is turned off.)
* Make sure to set [Normal] for RCU. CK.

| CODE ITEM | ITEM | DATA | |
|---|---|---|---|
| | | 00 00 | 00 01 |
| 01 | RCU. Main/Sub | Sub | Main |
| 02 | Clock display | 24 hours | 12 hours (AM/PM) |
| 08 | RCU. CK | RCU. CK | Normal |
| 0A | Room temperature sensor | Main unit | RCU |

### 3-7. Indoor Unit Setting Mode

To select the ventilation setting or change the temperature unit, follow the steps below.

①Press [🔧] + [SET] + [CANCEL] buttons on the remote controller for more than 4 seconds together.
②Select CODE No. with [▲] / [▼] (🌡) buttons.
③Change DATA with [▲] / [▼] (TIMER) buttons.
④Press [SET] . Finally, press [🔧] .
* DATA is memorized in the indoor unit. (DATA setting will not be changed even when the power is turned off.)

| CODE ITEM | ITEM | DATA | |
|---|---|---|---|
| | | 00 00 | 00 01 |
| 31 | Vent. button | No | Yes |
| 33 | Temperature unit | °C | °F |

### 3-8. To Display the Sensor Temperature:

- Press both [CANCEL] and [🔧] buttons on the remote controller for more than 4 seconds together.
- Change the sensor address (CODE No.) with [▲] / [▼] (🌡) buttons.
- Select the UNIT No. which you want to call with the [UNIT] button.
- Press the [🔧] button to finish service mode.

### 3-9. To Display the Trouble History:

- Press both [SET] and [🔧] buttons on the remote controller for more than 4 seconds together.
- Change the alarm message: [▲] / [▼] (🌡) buttons
- Press the [🔧] button to finish service mode.

CODE No. 01→04
(New) (Old)

## 3. Timer Remote Controller

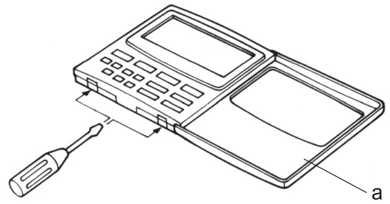


**Fig. 2-4**

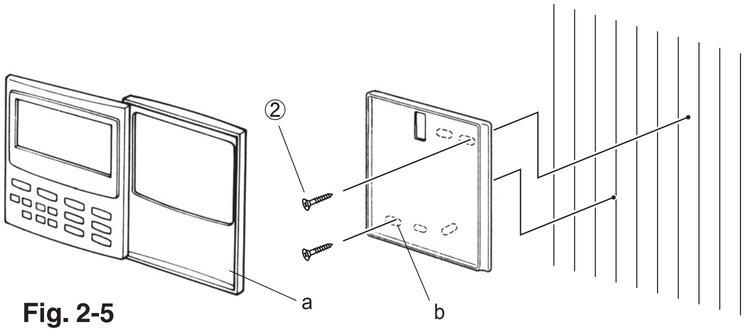
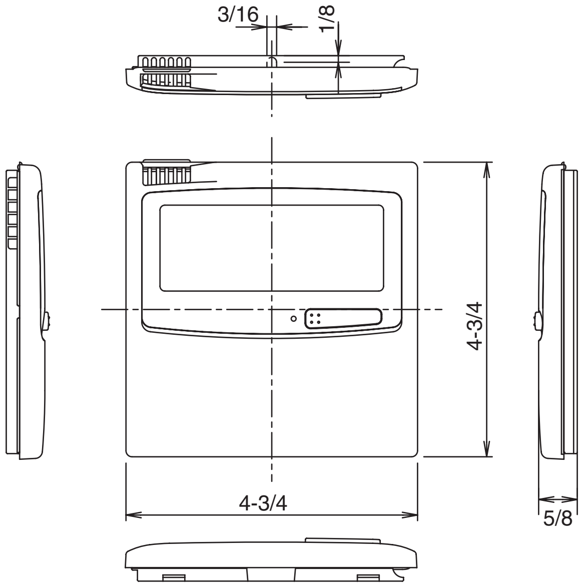
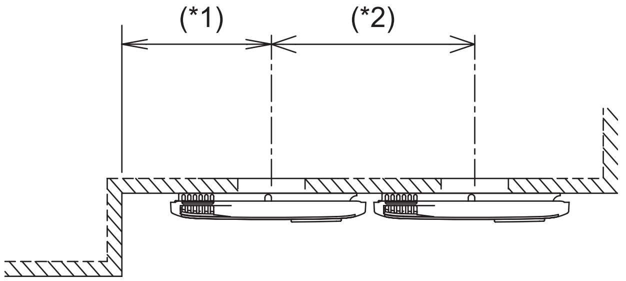


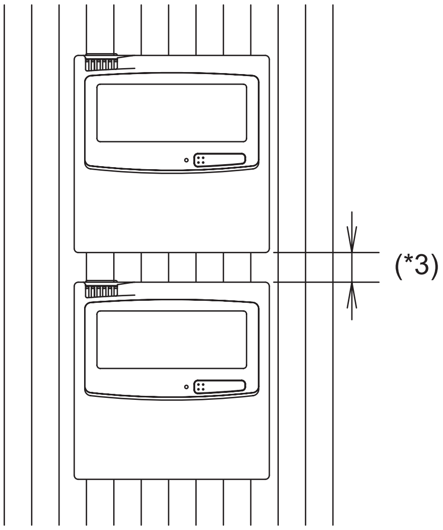
**Fig. 2-5**

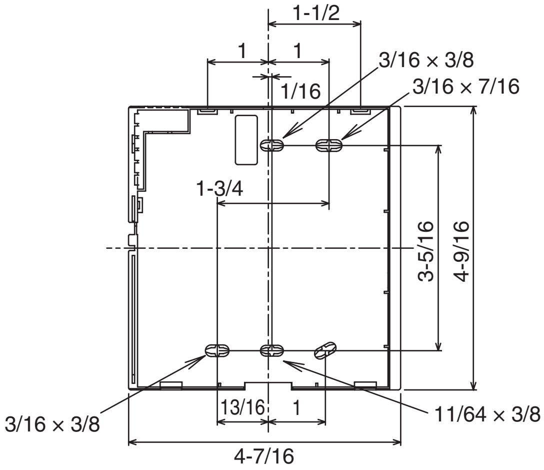
Caution when installing the remote controller

*1 Install the remote controller more than 3-3/8" apart from the wall surface.
*2 To install the remote controllers side-by-side, keep the space between each for more than 4-59/64".
*3 To install the remote controllers one above the other, keep the space between each for more than 1".


3/16
1/8
4-3/4
4-3/4
5/8

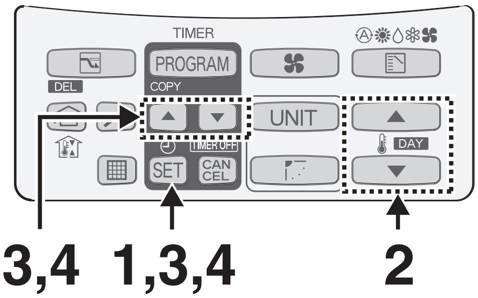




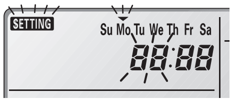

1-1/2
1
1
1/16
3/16 × 3/8
3/16 × 7/16
1-3/4
3-5/16
4-9/16
3/16 × 3/8
13/16
1
11/64 × 3/8
4-7/16

unit :in.

### 3-10. Setting the Present Time

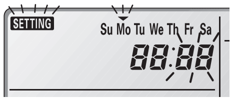


1. **Press and hold SET for more than 2 seconds to enter in the present day and time setting mode.**
   Once you enter in the setting mode, SETTING, "▼"(day) and "time" flash.
2. **Set "▼" to today's day of the week.**
   Press DAY [*1] ▲ to move "▼" (flashing on the display) in the order of : Su → Mo → Tu → .... Press ▼ to move it in the order of : Su → St → Fr → ....
   [*1] While in time setting mode, the temperature setting buttons function as DAY (changing day) button.
3. **Press ▲ ▼ to change the present "hour" in the range of 0 to 23[*2].**
   Set the present hour and press SET.
   The "hour" digits light up, and the "minute" digits start flashing.
   [*2] If the clock uses the 12 hours AM/PM setting, the hour is displayed in the range of AM 0 to 11/PM 0 to 11.



4. **Press ▲ ▼ , to change the present "minute" in the range of 0 to 59.**
   Set the present minute and press SET. The day and time are set and finishes the setting mode.

**NOTE**



- The unit returns to the normal mode if CAN CEL is pressed or there is no operation made for 3 minutes during the setting. In this case, all the settings in progress will be lost.
- If the present time is invalid, "– – : – –" is displayed.
  If the power failure for more than 1 hour occurs, check if the set data of day and time are valid.

### 3-11. Weekly Program Function

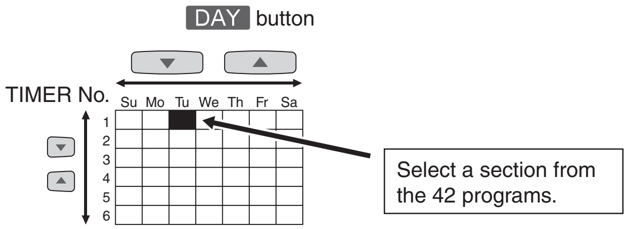
#### Checking Weekly Timer

Set the weekly program assigning a given timer to each day of the week.
Maximum of 6 programs a day and 42 programs a week can be set.
Select the day and the TIMER number you want to program.

#### Program image diagram

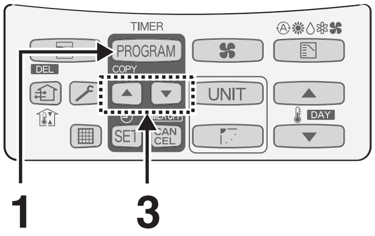
Vertical scale indicates the TIMER No., and horizontal scale indicates the day.

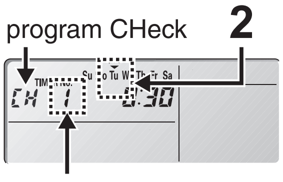
* If the day is changed, the TIMER No. returns to “1”.


DAY button
▼
▲
TIMER No.
Su Mo Tu We Th Fr Sa
1
2
3
4
5
6

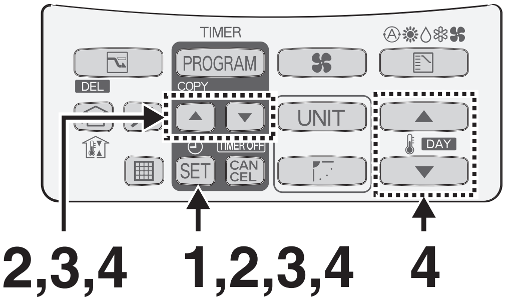
Select a section from the 42 programs.

1. **Press PROGRAM to enter the program confirmation mode “CH” and start setting.**
   Once you enter the program confirmation mode, the present day is indicated as TIMER No. “1”.
2. **Select the day.**
   Press DAY and ▲ / ▼ to move the “▼” horizontally on the day to select.
   Press ▲ to move “▼” (flashing on the display) in the order of : Su → Mo → Tu....
   Press ▼ to move it in the order of : Su → Sa → Fr....
   “– – : – –” is displayed when the program is not set.
3. **Select a Timer number.**
   Press ▲ / ▼ to select a TIMER No. from 1 to 6.
   Press ▲ to move up from 1.
   Press ▼ to move down from 6.


TIMER
PROGRAM
DEL
COPY
UNIT
DAY
SET
CANCEL
1
3


program CHeck
2
Su Mo Tu We Th Fr Sa
CH 1
TIMER No. 1~6

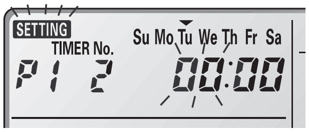
- Changing the Program Timer


TIMER
PROGRAM
COPY
DEL
UNIT
DAY
SET
CAN CEL
TIMER OFF
2,3,4
1,2,3,4
4

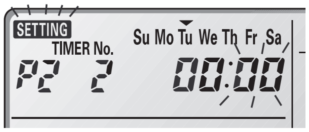
To set the weekly program, follow the steps below.

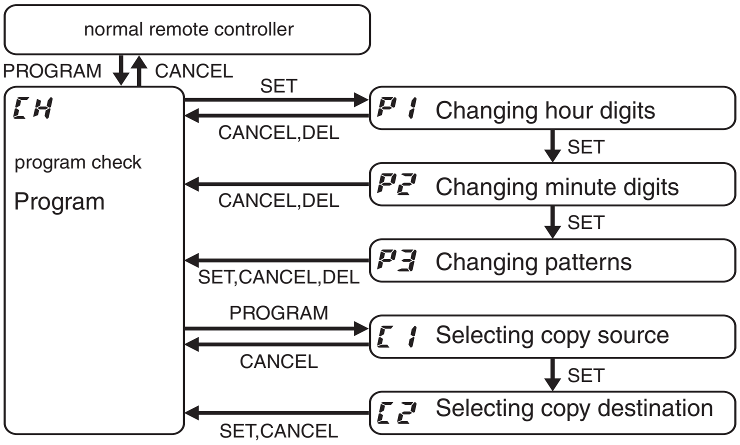
1. **Select the program you want to set in the program confirmation mode, and press SET. The enters the setting mode of the program currently displayed.**
   * In the program setting mode, SETTING, “hour”, “minute” and “item” flash on the display.
2. **Set the “hour”. (program step 1)**
   Press ▲ / ▼ to set the “hour”.
   Confirm the “hour” and press SET. The enters the program changing mode P2 (setting of the “minute”).
3. **Set the “minute”. (program step 2)**
   Press ▲ / ▼ to set the “minute”.
   Confirm the “minute” and press SET.The unit enters P3 (the program pattern selection mode).

Program step1


SETTING
TIMER No.
Su Mo Tu We Th Fr Sa
P1 2
00:00

Program step2


SETTING
TIMER No.
Su Mo Tu We Th Fr Sa
P2 2
00:00


normal remote controller
PROGRAM
CANCEL
CH
program check
Program
SET
CANCEL,DEL
P1 Changing hour digits
SET
CANCEL,DEL
P2 Changing minute digits
SET
SET,CANCEL,DEL
P3 Changing patterns
PROGRAM
CANCEL
C1 Selecting copy source
SET
C2 Selecting copy destination
SET,CANCEL

4. **Set the program pattern. (program step 3)**

   There are 4 program patterns.

   Pressing ▲ / ▼ repeats the following display patterns.

**Pattern 1**

| |
|---|
| The indoor unit starts operation at the programmed time. |

**Pattern 2**

| |
|---|
| The indoor unit stops operation at the programmed time. |

**Pattern 3**

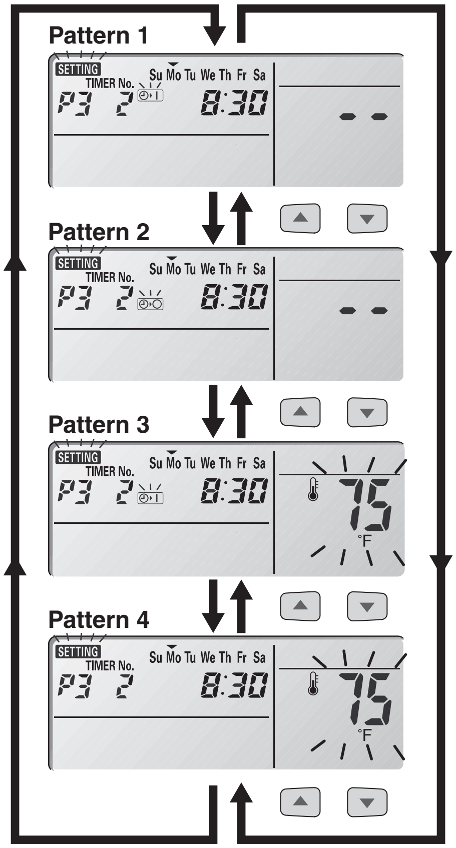
| |
|---|
| The indoor unit starts operation at the programmed time and changes the temperature settings. |

Press ▲ / ▼ to change the temperature setting.

**Pattern 4**

| |
|---|
| The indoor unit changes the temperature setting at the programmed time. |

Press ▲ / ▼ to change the temperature setting.


Pattern 1
SETTING
TIMER No.
Su Mo Tu We Th Fr Sa
P3 2
8:30
- -
Pattern 2
SETTING
TIMER No.
Su Mo Tu We Th Fr Sa
P3 2
8:30
- -
Pattern 3
SETTING
TIMER No.
Su Mo Tu We Th Fr Sa
P3 2
8:30
75
°F
Pattern 4
SETTING
TIMER No.
Su Mo Tu We Th Fr Sa
P3 2
8:30
75
°F

Select the program pattern and press SET. The program timer setting is confirmed and the unit enters the confirmation mode CH.

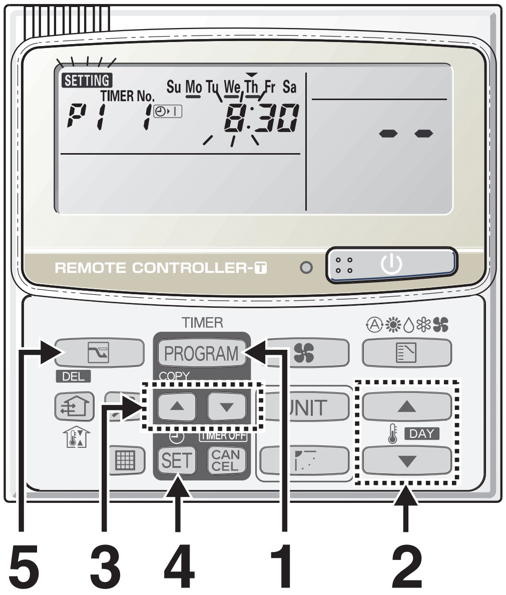
**NOTE**

- If you press CANCEL during the setting, it returns to the program confirmation mode.
- If there is no operation made for 3 minutes during the setting, it returns to the normal mode.
  In this case, all the settings in progress will be invalid.

- **Deleting the Program Timer**

To delete the program timer setting, follow the steps below.

1. **Press PROGRAM to enter the program confirmation mode.**
2. **Press ▲ / ▼ to select the day of the program you want to delete.**
3. **Press ▲ / ▼ to select a TIMER No. (from 1 to 6).**
4. **Press SET to display the program setting mode P 1.**
5. **Press DEL to delete the program.**



**NOTE**

- After deleting, the unit returns to the program confirmation mode CH.
- If you press CAN CEL during the setting, the unit returns to the program confirmation mode.
- If there is no operation made for 3 minutes during the setting, the unit returns to the normal mode.

- **Invalidating Program Timer**

If you want to adjourn the program operation for more than 1 week, you can invalidate all the timer settings.
Once the timer settings are invalidated, the program will not be operated until the invalidation is cancelled.

### <<How to invalidate the program timer>>

Press and hold TIMER OFF CAN CEL for more than 2 seconds.

TIMER OFF is displayed and the programs will be invalidated from the next one.

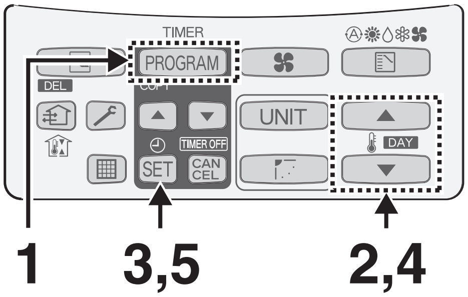
### <<How to cancel the program timer invalidation>>

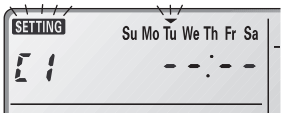
Press and hold TIMER OFF CAN CEL for more than 2 seconds.

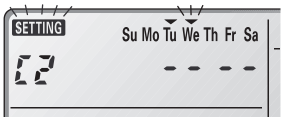
TIMER OFF disappears and the programs will be validated from the next one.

### If Power Failure Occurred

If the power recovers in a short time period, the program after the recovered time will be valid.
If the power recovered more than 1 hour after the failure, the present time information will be lost. In this case, the program will not be operated.







- **Duplicating the Program Timer**

You can duplicate the preset program by day.

### Select the copy source.

1. If PROGRAM COPY is pressed in program checking mode CH, it enters the copy mode (Selecting the copy source C 1) of the program timer.
   While in the copy mode of the program timer, SETTING and ▼ (day) of the copy source flash on the display.
2. Press ▲ / ▼ to select the day of the copy source.
   Select the copy destination.
3. If SET is pressed in the mode of selecting the copy source C 1, it enters the copy mode (Selecting the copy destination C2) of the program timer.
4. Press ▲ / ▼ to select the day of the copy source.
   Then, press SET to complete copying and return to the program checking mode.

**NOTE**

The program will be overwritten if the preprogrammed day is selected as a copy source.

- **Before Asking Repair Work**

Before asking repair work, please check the followings.

| Trouble | Possible Cause/Remedy |
|---|---|
| "ERROR" is displayed when the minute digits are entered. | If there is another TIMER No. which has the program of the same time and same day, you cannot overlap the setting. |
| The set data is not stored. | The stored programs are automatically sorted by the time. Check if the data is stored in the other TIMER No. |
| Program does not function. | Check if the time indication is not "– – : – –".<br>When the time is invalid, the program is also invalid. |
| | Check the remote controller prohibition inside.<br>In that case, the program is invalid. |

### 3-12. Outing Function

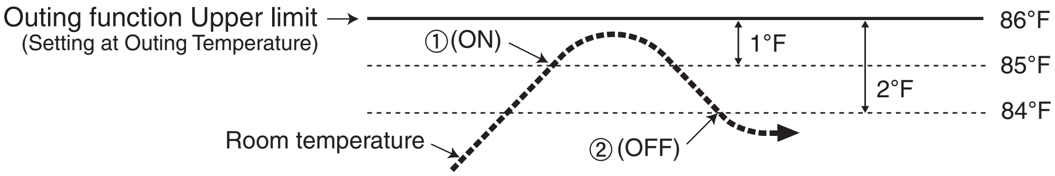
Outing function is a function that prevents the room temperature from increasing too much (or decreasing too much) when no one is in the room.
An air conditioner works automatically if this function is set effective.

### General Performance of the Outing Function

**COOL / DRY**

① The air conditioner starts operation when the room temperature increases up to –1°F of the upper limit.
② The air conditioner stops operation when the room temperature decreases up to –2°F of the upper limit.

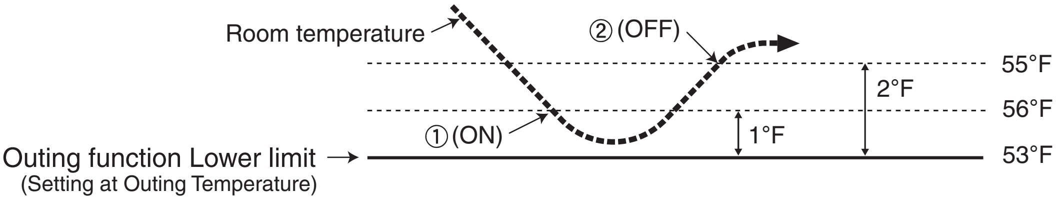
- ■ For Example
  - Setting at Outing Temperature 86°F.


Outing function Upper limit →
(Setting at Outing Temperature)
①(ON)
1°F
86°F
85°F
2°F
84°F
Room temperature
②(OFF)

**HEAT**

① The air conditioner starts operation when the room temperature decreases up to +1°F of the lower limit.
② The air conditioner stops operation when the room temperature increases up to +2°F of the lower limit

- ■ For Example
  - Setting at Outing Temperature 53°F.

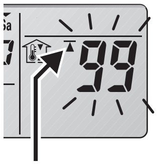

Room temperature
②(OFF)
55°F
2°F
56°F
①(ON)
1°F
Outing function Lower limit →
(Setting at Outing Temperature)
53°F

**[Precautions]**

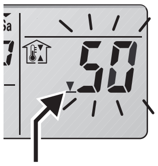
- The outing control only starts/stops the air conditioner. It does not change the operation mode/temperature setting. Therefore, the operation mode/temperature needs to be set beforehand so that the outing function turns on the air conditioner with your desired operation mode/ temperature setting.
- If the room temperature rapidly changes, the room temperature may get over the upper or lower limit when the outing function is activated.
- The outing function is invalid during FAN/AUTO operation mode.
- The air conditioner's stop order (stated in ② /above) is valid only when the outing function is operated. If operated using other remote control unit (or a centralized control device such as a system control), the outing function does not work.

### 3-12. Outing Function (Continued)

**● Setting the Outing Function**



2



3

1. **Press and hold ⌂ for more than 2 seconds to display the upper limit temperature setting screen.**
   ⌂ , ▲ and the upper limit temperature start flashing.
   (The default value of the upper limit temperature is 99°F.)
2. **Press ▲ / ▼ to select the upper limit temperature and press SET to fix the value. The lower limit temperature setting screen is displayed.**
3. **Press ▲ / ▼ to select the lower limit temperature, and press SET to fix the value. The outing function setting is completed. (The default value of the lower limit temperature is 50°F.)**

* The unit returns to the normal mode if CANCEL is pressed or there is no operation made for 3 minutes during the setting. In this case, all the settings in progress will be lost.

**● Canceling the outing function**

Press and hold ⌂ for more than 2 seconds while the outing function is set.

**● Outing function indication**

| Outing function indication | Status |
|---|---|
| Off | The outing function is not set. |
| Flashing | The outing function is now being set, or under operation. |
| Lighting | Although the outing function is set, not under operation. |

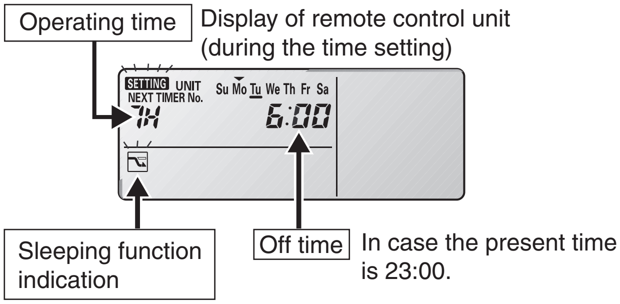
**NOTE**

A remote controller loses outing function operation information when it is cut for more than one hour during the outing function operation by electricity. It reverts from the blackout, and an air conditioner does not drive in outing function when operation is started. At this time, an air conditioner does not stop at outing function.

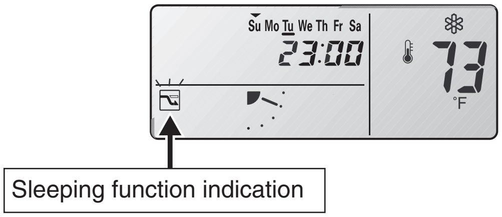
### 3-13. Sleeping Function

- * This function leads you to a comfortable sleep and changes the room temperature during your sleep.
- * You can set the off timer every one hour from 1 to 10 hours.

Display of remote control unit (during the time setting)


Operating time
SETTING UNIT
NEXT TIMER No.
Su Mo Tu We Th Fr Sa
7H
6:00
Sleeping function indication
Off time
In case the present time is 23:00.

Display of remote control unit (during sleeping function setting)


Su Mo Tu We Th Fr Sa
23:00
73
°F
Sleeping function indication

- * If no operation is made for 3 minutes, the time setting mode will be automatically finished.

**Ex.** In case of 7 hours timer

1. Press .
- Each time the button is pressed, the indication changes in the following order.

→ 7H → 6H → ····· → 1H → 10H → ····· → 8H
(every one hour)

(Press CANCEL to stop the time setting.)

2. Press SET.
- The sleeping operation starts.

When the off time comes:

- The indoor unit stops.
  - * The temperature returns to the setting at the time when sleeping function operation started.

To cancel the sleeping function operation:

- Press .
  - * The temperature setting remains at the time cancelled.
- The following buttons also cancel the sleeping function operation.

⏻ button
Stop the indoor unit after the sleeping function operation is cancelled.

button
Changes the operation mode after the sleeping function operation is cancelled.

### 3-14. Wired Remote Controller Test Run Settings

1. Press the remote controller 🔧 button for 4 seconds or longer.
2. “TEST” appears on the LCD display while the test run is in progress.
3. Then press the ⏻ button.

- The temperature cannot be adjusted when in Test Run mode.
  (This mode places a heavy load on the machines. Therefore use it only when performing the test run.)
- The test run can be performed using the HEAT, COOL, or FAN operation modes.

**NOTE**

The outdoor units will not operate for approximately 3 minutes after the power is turned ON and after operation is stopped.

- If correct operation is not possible, an error code is displayed on the remote controller LCD display.
  (Refer to “Table of Self-Diagnostic Functions” and correct the problem.)

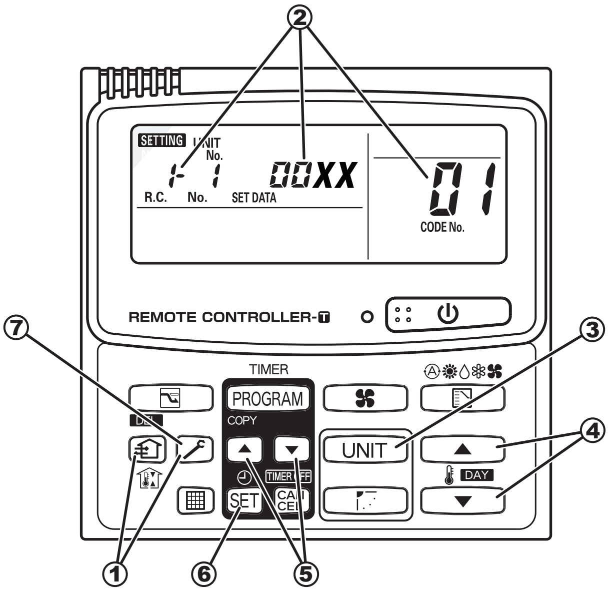
4. After the test run is completed, press the 🔧 button again. Check that “TEST” disappears from the LCD display.

- To prevent continuous test runs, this remote controller includes a timer function that cancels the test run after 60 minutes.
- The operation is possible even if the cassette-type ceiling panel has not been installed. (“P09” display does not occur.)

### 3-15. Simple Settings Function

- This allows the filter lifetime, operating mode priority change, central control address, and other settings to be made for an individual or group-control indoor unit to which the remote controller used for simple settings is connected.

  When this function is engaged, operation stops at the individual or group-control indoor unit to which the remote controller for simple settings is connected.



**<Procedure>**

① Press and hold the 🔧 and ⌂ buttons simultaneously for 4 seconds or longer.

② "SETTING," unit No. "I- I" (or "ALL" in the case of group control), item code "01," and settings data "00XX" are displayed blinking on the remote controller LCD display. At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

③ If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

* If unit No. "ALL" is displayed, the same setting will be made for all indoor units.

④ Press the temperature setting ▲ / ▼ buttons to select the item code to change.

⑤ Press the timer time ▲ / ▼ buttons to select the desired setting data.

* For item codes and setting data, refer to the following page.

⑥ Press the SET button.
(The display stops blinking and remains lit, and setting is completed.)

⑦ Press the 🔧 button to return to normal remote controller display.

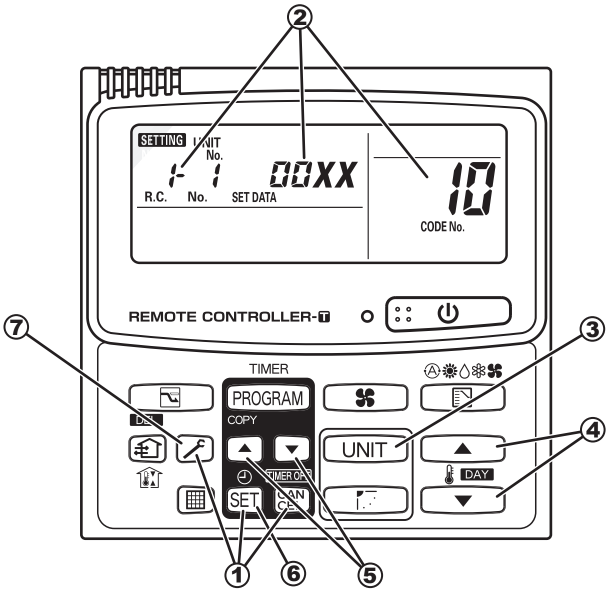
### List of Simple Setting Items

| Item code | Item | Setting data | | |
|---|---|---|---|---|
| | | No. | Description | |
| 01 | Filter sign ON time (filter lifetime) | 0000 | Not displayed | |
| | | 0001 | 150 hours | |
| | | 0002 | 2,500 hours | |
| | | 0003 | 5,000 hours | |
| | | 0004 | 10,000 hours | |
| | | 0005 | Use the filter clogging sensor. | |
| 02 | Degree of filter fouling | 0000 | Standard (setting at time of shipping) | |
| | | 0001 | Highly fouled (Filter sign ON time is reduced to one-half the set time.) | |
| 03 | Central control address | 0001 | Central control address 1 | |
| | | 0002 | Central control address 2 | |
| | | 0003 | Central control address 3 | |
| | | ≀ | ≀ | |
| | | 0064 | Central control address 64 | |
| | | 0099 | No central control address set (setting at time of shipping) | |
| 04 | Operating mode priority change | 0000 | Normal (setting at time of shipping) | |
| | | 0001 | Priority | |
| 05 | Fan speed when heating thermostat is OFF | | Compressor ON | Compressor OFF |
| | | 0000 | MED 1 min., LO 3 min. | LO |
| | | 0001 | MED | LO |
| | | 0002 | LO | LO |
| | | 0004 | MED 1 min., LO 3 min. | MED |
| | | 0005 | MED | MED |
| | | 0006 | LO | MED |
| 06 | Heating intake temperature shift | 0000 | No shift | |
| | | 0001 | Shifts intake temperature 2°F down. | |
| | | 0002 | Shifts intake temperature 4°F down. | |
| | | 0003 | Shifts intake temperature 6°F down. | |
| | | 0004 | Shifts intake temperature 8°F down. | |
| | | 0005 | Shifts intake temperature 10°F down. | |
| | | 0006 | Shifts intake temperature 12°F down. | |
| 07 | Electric heater installation | 0000 | No heater | |
| | | 0001 | Heater installed | |
| 08 | Humidifying when heater thermostat is OFF | 0000 | No (setting at time of shipping) | |
| | | 0001 | Yes | |
| 0A | Change to remote controller sensor thermostat differential | 0000 | Thermostat OFF differential: –2°F (setting at time of shipping) | |
| | | 0001 | Thermostat OFF differential: –1°F | |
| 0d | Cooling/Heating Auto mode | 0000 | Permit | |
| | | 0001 | Prohibit | |
| 0E | Mode dependency | 0000 | Normal | |
| | | 0001 | Follow to main indoor unit operation mode | |
| 0F | Cooling-only | 0000 | Normal | |
| | | 0001 | Cooling only | |

### 3-16. Detailed Settings Functions

- This allows the system address, indoor unit address, and other settings to be made for the individual or group-control indoor unit to which the remote controller used for detailed settings is connected.

  When detailed settings mode is engaged, operation stops at the individual or group-control indoor unit where the remote controller used for detailed settings is connected. Simple settings items can also be set at this time.



**<Procedure>**

① Press and hold the 🔧, SET and CAN CEL buttons simultaneously for 4 seconds or longer.

② "SETTING," unit No. "1- 1" (or "ALL" in the case of group control), item code "10," and settings data "00XX" are displayed blinking on the remote controller LCD display.

At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

③ If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

④ Press the temperature setting ▲ / ▼ buttons to select the item code to change.

⑤ Press the timer time ▲ / ▼ buttons to select the desired setting data.

* For item codes and setting data, refer to the following page.

⑥ Press the SET button.
(The display stops blinking and remains lit, and setting is completed.)

⑦ Press the 🔧 button to return to normal remote controller display.

### List of Detailed Setting Items

| Item code | Item | Setting data | | | | | |
|---|---|---|---|---|---|---|---|
| | | No. | Description | No. | Description | No. | Description |
| 10 | Type | 0000 | 1-Way Air Discharge Semi-Concealed (A) | 0001 | 4-Way Air Discharge (Mini) Semi-Concealed (X, XM) | 0005 | (Slim) Concealed Duct (U, UM) |
| | | 0006 | Concealed Duct High Static Pressure (D) | 0007 | Ceiling-Mounted (T) | 0008 | Wall-mounted (K) |
| 11 | Indoor unit capacity | 0001 | 22 (Type 0752) | 0003 | 28 (Type 0952) | 0005 | 36 (Type 1252) |
| | | 0009 | 56 (Type 1852) | 0012 | 80 (Type 2452)<br>(Except FR254, FMR254) | 0015 | 112 (Type 3652) |
| | | 0017 | 140 (Type 4852) | | | | |
| 12 | System address | 0001 | Unit No. 1 | | | | |
| | | 0002 | Unit No. 2 | | | | |
| | | 0003 | Unit No. 3 | | | | |
| | | ≀ | ≀ | | | | |
| | | 0030 | Unit No. 30 | | | | |
| | | 0099 | Not set | | | | |
| 13 | Indoor unit address | 0001 | Unit No. 1 | | | | |
| | | 0002 | Unit No. 2 | | | | |
| | | 0003 | Unit No. 3 | | | | |
| | | ≀ | ≀ | | | | |
| | | 0064 | Unit No. 64 | | | | |
| | | 0099 | Not set | | | | |
| 14 | Group control address | 0000 | Individual (1:1 = Indoor unit with no group wiring) | | | | |
| | | 0001 | Main unit (One of the group-control indoor units) | | | | |
| | | 0002 | Sub unit (All group-control indoor units except for main unit) | | | | |
| | | 0099 | Not set | | | | |
| 17 | Cooling intake temperature shift | –010 | Shifts intake temperature by –20°F. | | | | |
| | | –009 | Shifts intake temperature by –18°F. | | | | |
| | | ≀ | ≀ | | | | |
| | | –001 | Shifts intake temperature by –2°F . | | | | |
| | | 0000 | No intake temperature shift | | | | |
| | | 0001 | Shifts intake temperature by +2°F. | | | | |
| | | ≀ | ≀ | | | | |
| | | 0009 | Shifts intake temperature by +18°F. | | | | |
| | | 0010 | Shifts intake temperature by +20°F. | | | | |
| 18 | Automatic stop time after operation start<br>*Can be set in 5-minute units. | 0000 | Function disabled | | | | |
| | | 0001 | Stops automatically 5 minutes after operation starts. | | | | |
| | | 0002 | Stops automatically 10 minutes after operation starts. | | | | |
| | | ≀ | ≀ | | | | |
| | | 0123 | Stops automatically 615 minutes after operation starts. | | | | |
| | | 0124 | Stops automatically 620 minutes after operation starts. | | | | |
| | | 0125 | Stops automatically 625 minutes after operation starts. | | | | |

| Item code | Item | | Setting data | |
|---|---|---|---|---|
| | | | **No.** | **Description** |
| 1b (1B) | Forced thermostat ON time | | 0000 | 5 minutes |
| | | | 0001 | 4 minutes |
| 1C | Cooling discharge temperature shift | | −010 | − 20 °F |
| | | | −009 | − 18 °F |
| | | | −008 | − 16 °F |
| | | | ≀ | ≀ |
| | | | 0010 | + 20 °F |
| 1d | Heating discharge temperature shift | | −010 | − 20 °F |
| | | | −009 | − 18 °F |
| | | | −008 | − 16 °F |
| | | | ≀ | ≀ |
| | | | 0010 | + 20 °F |
| 1E | Temperature shift for cooling/heating change in “Auto Heat/Cool” mode | | 0001 | ± 2 °F |
| | | | 0002 | ± 4 °F |
| | | | 0003 | ± 6 °F |
| | | | ≀ | ≀ |
| | | | 0007 | ± 14 °F |
| 1F<br>(Upper limit)<br>20<br>(Lower limit) | Change to remote control temperature setting range | Cooling | 0018 | 64°F (Lower limit at time of shipping) |
| | | | 0019 | 66°F |
| | | | ≀ | ≀ |
| | | | 0029 | 84°F |
| | | | 0030 | 86°F (Upper limit at time of shipping) |
| 21<br>(Upper limit)<br>22<br>(Lower limit) | | Heating | 0016 | 60°F (Lower limit at time of shipping) |
| | | | 0017 | 62°F |
| | | | ≀ | ≀ |
| | | | 0029 | 84°F |
| | | | 0030 | 86°F (Upper limit at time of shipping) |
| 23<br>(Upper limit)<br>24<br>(Lower limit) | | Drying | 0018 | 64°F (Lower limit at time of shipping) |
| | | | 0019 | 66°F |
| | | | ≀ | ≀ |
| | | | 0029 | 84°F |
| | | | 0030 | 86°F (Upper limit at time of shipping) |
| 25<br>(Upper limit)<br>26<br>(Lower limit) | | Auto heat/cool | 0017 | 62°F (Lower limit at time of shipping) |
| | | | 0018 | 64°F |
| | | | ≀ | ≀ |
| | | | 0026 | 78°F |
| | | | 0027 | 80°F (Upper limit at time of shipping) |
| 29 | Humidifier operation | | 0000 | Normal |
| | | | 0001 | Ignore heat exchanger temperature conditions. |
| 2A | Filter (CN70) input switching | | 0000 | Filter input (differential pressure switch input) |
| | | | 0001 | Alarm input (for trouble input about air cleaner or similar device) |
| | | | 0002 | Humidifier input (Operates linked with drain pump when humidifier is ON.) |
| 2C | Indoor unit electronic control valve | | 0000 | Present (Setting at time of shipping) |
| | | | 0002 | None |

| Item code | Item | Setting data | |
|---|---|---|---|
| | | **No.** | **Description** |
| 2E | T10 terminal switching | 0000 | Normal (Used as optional relay PCB or JEMA standard HA terminal.) |
| | | 0001 | Used for OFF reminder |
| | | 0002 | Fire prevention input |
| 2F | Automatic drain pump operation | 0000 | No forced operation |
| | | 0001 | Forced operation for 1 minute |
| | | ≀ | ≀ |
| | | 0060 | Continuous operation |
| 31 | Ventilation fan operation | 0000 | None |
| | | 0001 | Ventilation fan operated by remote controller. |
| 32 | Wired remote controller sensor | 0000 | Not used. (Body sensor is used.) |
| | | 0001 | Remote control sensor is used. |
| 34 | “Operation change control in progress” display | 0000 | Normal (displayed) |
| | | 0001 | Not displayed |
| 35 | OFF reminder function for when weekly timer is used | 0000 | None |
| | | 0001 | Only stop time setting is enabled. |
| 3A | Discharge temperature control | 0000 | Discharge temperature control OFF |
| | | 0001 | Discharge temperature control ON |
| 3b | RAP valve | 0000 | RAP valve control OFF |
| | | 0001 | RAP valve control ON |
| 3C | Heat exchanger temperature for cold air discharge (Heat exchanger control point for control to prevent cold air) | 0013 | Control temperature 55°F |
| | | 0014 | Control temperature 57°F |
| | | ≀ | ≀ |
| | | 0025 | Control temperature 77°F |
| | | 0026 | Control temperature 78°F |
| 3d | Fan output switching | 0000 | Output linked with fan. (ON when indoor unit fan is operating.) |
| | | 0001 | Fan mode operation output |
| 3E | Drain pump delayed start time | 0000 | No delayed start |
| | | 0001 | 1 sec. delayed start |
| | | 0002 | 2 sec. delayed start |
| | | ≀ | ≀ |
| | | 0058 | 58 sec. delayed start |
| | | 0059 | 59 sec. delayed start |
| | | 0060 | 60 sec. delayed start |
| 40 | Humidifier setting | 0000 | Humidifier output OFF. Drain pump stopped. |
| | | 0001 | Humidifier output ON. Drain pump operates. |
| | | 0002 | Humidifier output ON. Drain pump operates for 1 minute when total humidifier operating time reaches 60 minutes. |
| | | 0003 | Humidifier output ON. Drain pump stopped. |
| 45 | Flap operation mode | 0000 | Standard setting |
| | | 0001 | Draft reduction mode (Flap swing lower-limit position is upwards.) |

## 3. Timer Remote Controller

| Item code | Item | Setting data | | |
|---|---|---|---|---|
| | | No. | Description | |
| 46 | Flap swing mode | 0000 | Smudging reduction mode (Flap swing upper-limit position is shifted downwards.) | |
| | | 0001 | Normal mode | |
| | | 0002 | Draft reduction mode (Flap lower-limit position is shifted shifted upwards.) | |
| 5d | Fan tap setting (Fan tap change in order to prevent drop in air discharge caused by filter installation) | | DC fan tap operating mode | Purpose |
| | | 0000 | Standard | Standard (setting at time of shipping) |
| | | 0001 | High ceiling use | High ceiling setting 1 (with standard panel) |
| | | | For low static-pressure filter | Ultra long-life filter, oil guard panel, ammonia deodorizing filter, optical regenerative deodorizing filter |
| | | 0003 | High ceiling use | High ceiling setting 2 (with standard panel) |
| | | | For low static-pressure filter | (Antibacterial) high-performance filter (90%)<br>(Antibacterial) high-performance filter (65%)<br>Air-cleaning unit, air-cleaning unit + optical regenerative deodorizing filter, deodorant (activated charcoal) filter |
| | | | For air-blocking material | For 3-way discharge, when discharge duct is connected |
| | | 0006 | For air-blocking material | For 2-way discharge |
| 5E | Humidifier ON time (ON time per 60 seconds) | 0000 | No humidifier output | |
| | | 0001 | 1 sec. | |
| | | 0002 | 2 sec. | |
| | | ≀ | ≀ | |
| | | 0058 | 58 sec. | |
| | | 0059 | 59 sec. | |
| | | 0060 | Continuously ON | |
| 5F | Repeat timer switching | 0000 | Function disabled | |
| | | 0001 | Function enabled | |
| 60 | Timer function change prohibit | 0000 | Function disabled | |
| | | 0001 | Function enabled | |
| 62 | Smudging control | 0000 | No smudging control | |

### Selecting the DC fan motor tap (when setting with the remote controller)

**<Procedure>**
**Stop the system before performing these steps.**

① Press and hold the 🔧, SET and CAN CEL buttons simultaneously for 4 seconds or longer.

② If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

③ Use the temperature setting buttons to select item code “5d.”

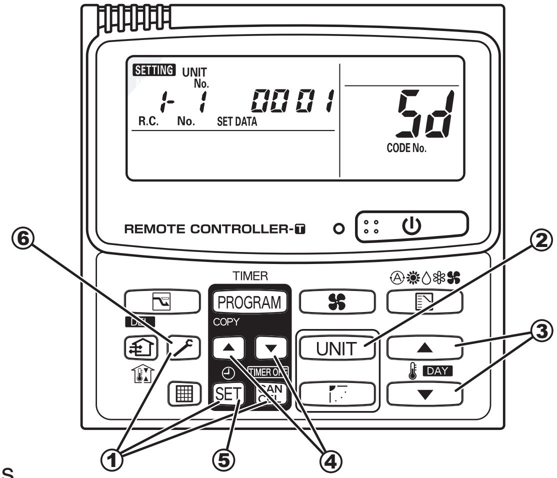
④ Press the timer time ▲ / ▼ buttons to select the desired setting data.

* For item codes and setting data, refer to Table 1 – Table 4.

⑤ Press the SET button. (The display stops blinking and remains lit, and setting is completed.)

* If air-blocking material is used, use the same procedure as in steps (3) – (5) above and change the setting for item code “62” to “0000.” To change the selected indoor unit, go to step (2).

⑥ Press the 🔧 button to return to normal remote controller display.



* Failure to make this setting may result in decreased airflow and condensation.

**Table 1 Table of DC Fan Motor Tap Settings (4-way Air Discharge Semi-Concealed type)**

| Setting No. | Remote controller setting data | Purpose of use, names of accessories |
|---|---|---|
|  | 0000 | Standard (setting at time of shipping) |
| (1) | 0001 | High ceiling setting 1 (for standards panel) |
|  |  | Super long-life filter |
|  |  | Oil guard panel |
|  |  | Oil guard panel with raising / lowering grille |
|  |  | Ammonia deodorant filter |
|  |  | Optical regeneration deodorant filter |
| (3) | 0003 | High ceiling setting 2 (for standards panel) |
|  |  | Ceiling panel with special raising / lowering grille for high locations |
|  |  | High performance filter (90% by JIS colorimetric method) |
|  |  | High performance filter (65% by JIS colorimetric method) |
|  |  | Air cleaning unit |
|  |  | Optical regeneration deodorant filter for air cleaning unit |
|  |  | Deodorant filter |
|  |  | Air-blocking material (for 3-way air discharge) |
|  |  | Air-blocking material (when a discharge duct is connected) |
| (6) | 0006 | Air-blocking material (for 2-way air discharge) |

**Table 2 Table of DC Fan Motor Tap Settings (ceiling-mounted type)**

| Setting No. | Remote controller setting data | Purpose of use, names of accessories |
|---|---|---|
|  | 0000 | Standard (setting at time of shipping) |
| (1) | 0001 | High ceiling setting |
|  |  | Super long-life filter |
|  |  | Ammonia deodorant filter (65% by JIS colorimetric method) |
|  |  | Optical regeneration deodorant filter |
| (3) | 0003 | High performance filter (65% by JIS colorimetric method) |
|  |  | Deodorant filter (65% by JIS colorimetric method) |

**Table 3 Table of DC Fan Motor Tap Settings (1-way Air Discharge Semi-Concealed type)**

| Setting No. | Remote controller setting data | Purpose of use, names of accessories |
|---|---|---|
|  | 0000 | Standard (setting at time of shipping) |
| (1) | 0001 | Optical regeneration deodorant filter |
| (3) | 0003 | Deodorant filter (65% by JIS colorimetric method)<br>Ammonia deodorant filter (65% by JIS colorimetric method) |

**Selecting the DC fan motor tap (when setting from the PCB)**

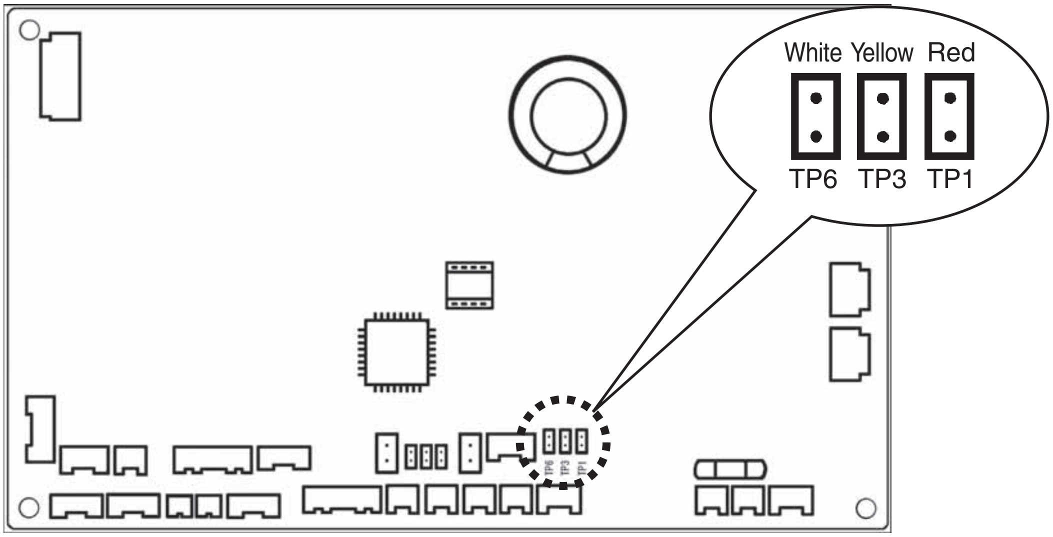
- **4-way Air Discharge Semi-Concealed type**

**<Procedure> Stop the system before performing these steps.**

① Open the electrical component box cover, then check the indoor unit control PCB.

② Connect the jumper connector (2P: yellow) which was supplied with the accessory to the correct connector pin on the indoor unit control PCB according to the setting number which was confirmed in Table 1 (Table of DC Fan Motor Tap Settings).

- If the setting No. is (1), then connect the jumper connector to the connector pin TP1 (2P: red) on the indoor unit control PCB.
- If the setting No. is (3), then connect the jumper connector to the connector pin TP3 (2P: yellow) on the indoor unit control PCB.



- **Suspended type**

**<Procedure> Stop the system before performing these steps.**

① Open the electrical component box cover, then check the indoor unit control PCB.

② Connect the jumper connector (2P: yellow) which was supplied with the accessory to the correct connector pin on the indoor unit control PCB according to the setting number which was confirmed in Table 2 (Table of DC Fan Motor Tap Settings).

- If the setting No. is (1), then connect the jumper connector to the connector pin TP1 (2P: red) on the indoor unit control PCB.
- If the setting No. is (3), then connect the jumper connector to the connector pin TP3 (2P: yellow) on the indoor unit control PCB.

- **1-way Air Discharge Semi-Concealed type**

**<Procedure> Stop the system before performing these steps.**

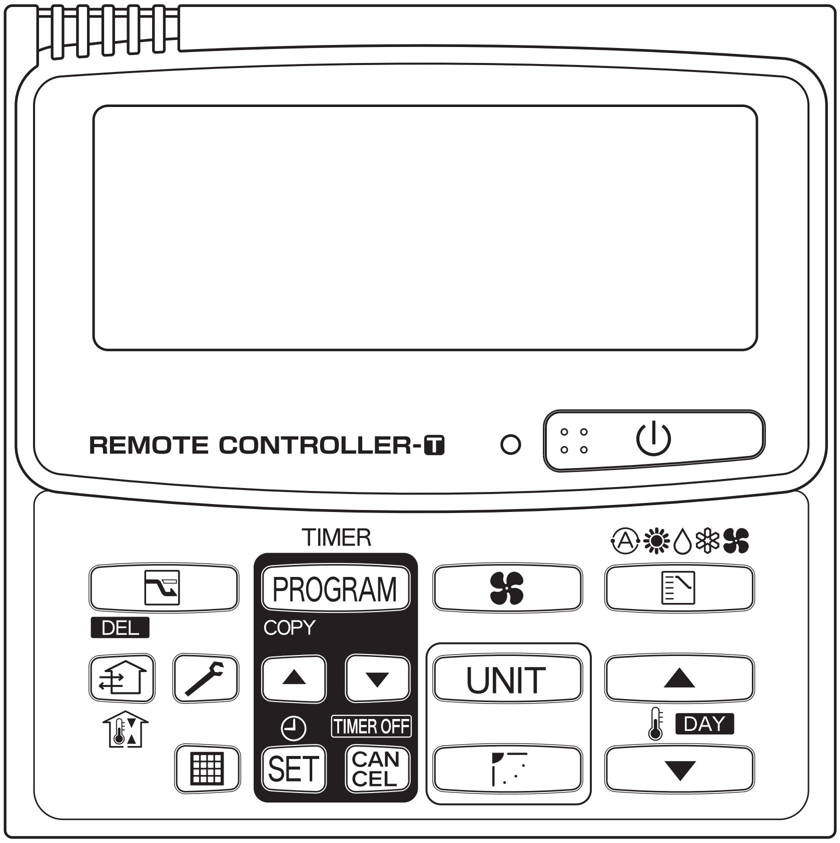
① Open the electrical component box cover, then check the indoor unit control PCB.

② Connect the jumper connector (2P: yellow) which was supplied with the accessory to the correct connector pin on the indoor unit control PCB according to the setting number which was confirmed in Table 3 (Table of DC Fan Motor Tap Settings).

- If the setting No. is (1), then connect the jumper connector to the connector pin TP1 (2P: red) on the indoor unit control PCB.
- If the setting No. is (3), then connect the jumper connector to the connector pin TP3 (2P: yellow) on the indoor unit control PCB.

### 3-17. Remote Controller Servicing Functions

| Function | Description | Button operation | Reset operation | Unit status |
|---|---|---|---|---|
| Test run | Operation with forced thermostat ON | Press and hold the 🔧 button for 4 seconds or longer. | Press the 🔧 button. | Current operation is maintained. |
| Sensor temperature display | Temperature display from each sensor | Press and hold the 🔧 and CAN CEL buttons for 4 seconds or longer. | | |
| Servicing check display | Alarm history display | Press and hold the 🔧 and SET buttons for 4 seconds or longer. | | |
| Simple settings | Filter lifetime, operating mode priority, central control address, and other settings | Press and hold the 🔧 and ⌂ buttons for 4 seconds or longer. | | When settings are made from a remote controller, the indoor unit where that remote controller is connected stops. |
| Detailed settings | System address, indoor unit address, central control address, and other settings | Press and hold the 🔧, SET and CAN CEL buttons for 4 seconds or longer. | | |
| Automatic address | Automatic address setting based on command from the wired remote controller | Press and hold the 🔧 and the timer operation ▲ buttons for 4 seconds or longer. | Automatic reset | Entire system stops. |
| Address change | Change of indoor unit address | Press and hold the 🔧 and the timer operation ▼ buttons for 4 seconds or longer. | Press the 🔧 button. | |



## Test Run Function

Operates the unit with the thermostat forced ON.

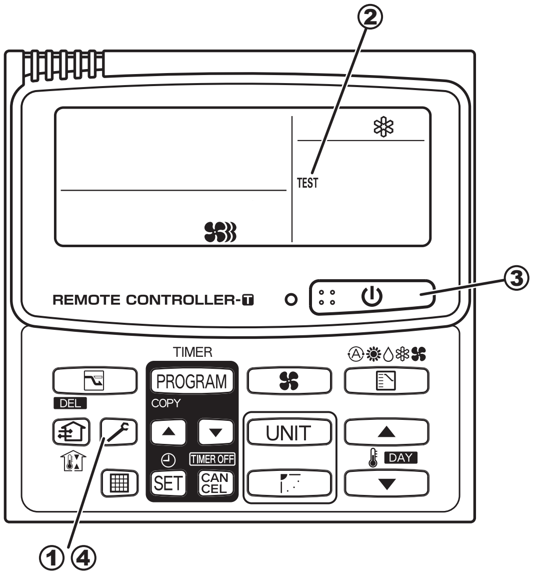
### <Procedure>

① Press and hold the 🔧 button for 4 seconds or longer.

② "Test" appears on the remote controller LCD display.

③ Start operation.

④ Press the 🔧 button to return to normal remote controller display.


②
TEST
③
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
TIMER OFF
SET
CAN CEL
①④

## ■ Sensor Temperature Display Function (displayed regardless of whether unit is operating or stopped)

The procedure below displays the sensor temperatures from the remote controller, indoor unit, and outdoor unit on the remote controller.

**<Procedure>**

① Press and hold the [🔧] and [CAN CEL] buttons simultaneously for 4 seconds or longer.

② The unit No. "X-X" (main unit No.), item code "XX" (sensor address), and servicing monitor "00XX" (sensor temperature) are displayed on the remote controller LCD display.

③ Press the temperature setting [▲] / [▼] buttons and select the item code to the address of the sensor to monitor.
(For the relationships between the sensor addresses and sensor types, refer to the table of temperature sensors and addresses below.)

④ If group control is in effect, press the [UNIT] button to select the unit to monitor.
Press the temperature setting buttons to select the item code to change.

⑤ Press the [🔧] button to return to normal remote controller display.

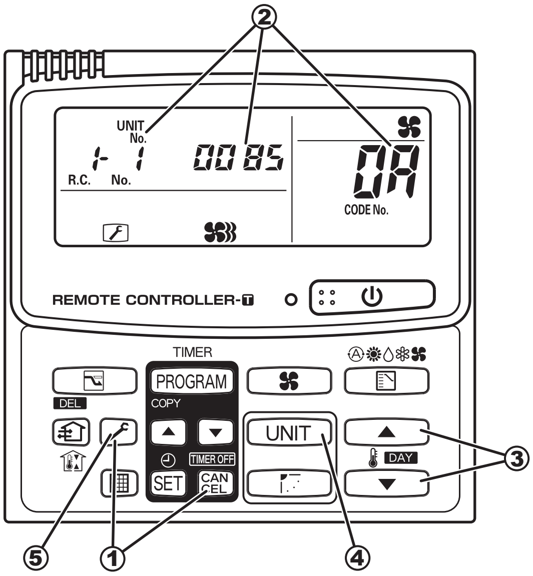
**NOTE**

The temperature display appears as "- - - -" for units that are not connected.

* If monitor mode is engaged while normal operation is in progress, only the parts of the LCD display shown in the figure will change. Other parts continue to display
the same information as during normal operation.

| Indoor unit sensors | |
|---|---|
| 02 | Intake temp. |
| 03 | E1 |
| 04 | – |
| 05 | E3 |
| 06 | Discharge temp. |
| 07 | Discharge temp. setting |
| 08 | Position of indoor unit<br>Motor Operated Valve (MOV) |

Sensor Temperature Diaplay



**NOTE**

The temperature on the remote controller is displayed in Celusis (C).
Please note that you will not mistakenly read it in Fahrenheit (F) on the display.

| Outdoor unit sensors | | | |
|---|---|---|---|
| Unit No. 1 | Unit No. 2 | Unit No. 3 | |
| 0A | 2A | 4A | Discharge temp. 1 |
| 0B | 2B | 4B | Discharge temp. 2 |
| 0C | 2C | 4C | High-pressure sensor temp. |
| 0D | 2D | 4D | Heat exchanger gas 1 |
| 0E | 2E | 4E | Heat exchanger liquid 1 |
| 0F | 2F | 4F | Heat exchanger gas 2 |
| 10 | 30 | 50 | Heat exchanger liquid 2 |
| 11 | 31 | 51 | Outdoor air temp. |
| 12 | 32 | 52 | — |
| 13 | 33 | 53 | — |
| 14 | 34 | 54 | CT2 |
| 15 | 35 | 55 | — |
| 16 | 36 | 56 | — |
| 17 | 37 | 57 | Discharge temp. 3 |
| 18 | 38 | 58 | CT3 |
| 19 | 39 | 59 | — |
| 1A | 3A | 5A | — |
| 1B | 3B | 5B | — |
| 1C | 3C | 5C | — |
| 1D | 3D | 5D | Low-pressure sensor temp. |
| 1E | 3E | 5E | Suction temp. |
| 1F | 3F | 5F | Oil 1 |
| 20 | 40 | 60 | Oil 2 |
| 21 | 41 | 61 | Oil 3 |
| 22 | 42 | 62 | — |

## 3. TROUBLE DIAGNOSIS

**1. Contents of Remote Controller Switch Alarm Display....................................................3-2**
**2. Outdoor Unit Control PCB LED Display ...........................................................................3-4**
**3. W-3WAY VRF Alarm Codes.......................................................................................3-5**
**4. Blinking ⚠ (Inspection) Display on the Remote Controller......................................... 3-26**

# 1. Contents of Remote Controller Switch Alarm Display

**ON:** ○ **Blinking:** ☼ **OFF:** ●

| Possible cause of malfunction | | | Wired remote control display | Wireless remote controller receiver display | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Operation | Timer | Standby for heating |
| Serial communication errors<br>Mis-setting | Remote controller is detecting error signal from indoor unit. | Error in receiving serial communication signal. (Auto address is not completed.) | <E01> | Operating lamp blinking | ☼ | ● | ● |
| | | Error in transmitting serial communication signal. | <E02> | | | | |
| | Indoor unit is detecting error signal from remote controller and system controller. | | <<E03>> | | | | |
| | Indoor unit is detecting error signal from outdoor unit. | Group wiring failure of indoor units in the refrigerant system (occurring when remote controller is operated immediately after automatic address setting) | E04 | Heating ready lamp blinking | ● | ● | ☼ |
| | Outdoor unit is detecting error signal from indoor unit. | • Error in receiving serial communication signal.<br>• There is an indoor unit which does not send signals when the power is ON. | E06 | | | | |
| | Improper setting | Indoor unit address setting is duplicated. | <<E08>> | Operating lamp blinking | ☼ | ● | ● |
| | | Duplicated remote controller "main" setting. | <<E09>> | | | | |
| | | • Starting auto. address setting is prohibited.<br>• AP pin / CN102 is shorted while the auto. address setting started. | E12 | | | | |
| | Indoor unit communication error of group control wiring. | Error of main indoor unit in receiving serial communication signal from sub indoor units. | E18 | | | | |
| | During auto. address setting, number of connected units does not correspond to number set. | Number of connected indoor units is less than the number set. | E15 | Heating ready lamp blinking | ● | ● | ☼ |
| | | Number of connected indoor units is more than the number set. | E16 | | | | |
| | | No indoor unit is connected. | E20 | | | | |
| | | Main outdoor unit is detecting error signal from sub outdoor unit. | E24 | | | | |
| | | Duplicated outdoor unit address setting. | E25 | | | | |
| | | Mismatch in "No. of outdoor units" setting. | E26 | | | | |
| | | Error of sub outdoor unit in receiving signal from main outdoor unit. | E29 | | | | |
| | Improper setting | Connected indoor unit is not a multi unit. | <<L02>> | Operating and heating ready lamps blinking simultaneously | ☼ | ● | ☼ |
| | | Duplication of main indoor unit address setting in group control. | <L03> | | | | |
| | | Group control wiring is connected to individual control indoor unit. | L07 | | | | |
| | | Indoor unit address is not set. | L08 | | | | |
| | | Capacity code of indoor unit is not set. | <<L09>> | | | | |
| | | Duplication of outdoor system address setting. | L04 | Operating and heating ready lamps blinking simultaneously | ☼ | ○ | ☼ |
| | | Capacity code of outdoor unit is not set. | L10 | | | | |
| | | Mismatch of outdoor unit type. | L17 | | | | |
| Thermistor fault | Indoor unit | Indoor coil temp. sensor (E1) | <<F01>> | Operating and timer lamps blinking alternately | ☼ | ☼ | ● |
| | | Indoor coil temp. sensor (E3) | <<F03>> | | | | |
| | | Indoor suction air (room) temp. sensor (TA) | <<F10>> | | | | |
| | | Indoor discharge air temp. sensor (BL) | <<F11>> | | | | |

Continued

# 1. Contents of Remote Controller Switch Alarm Display

**ON:** ○ **Blinking:** ☼ **OFF:** ●

| Possible cause of malfunction | | | Wired remote control display | Wireless remote controller receiver display | | |
|---|---|---|---|---|---|---|
| | | | | Operation | Timer | Standby for heating |
| Thermistor fault | Outdoor unit | Compressor 1 (INV) discharge temp. sensor | F04 | Operating and timer lamps blinking alternately<br>☼ | ☼ | ○ |
| | | Compressor 2 (constant speed) discharge temp. sensor | F05 | | | |
| | | Outdoor air temp. sensor | F08 | | | |
| | | Heat exchanger 1 liquid temp. sensor | F07 | | | |
| | | Heat exchanger 1 gas temp. sensor | F06 | | | |
| | | Compressor intake temp. sensor (suction temp) | F12 | | | |
| | | High-pressure sensor | F16 | | | |
| | | Low-pressure sensor | F17 | | | |
| | | Heat exchanger 2 liquid temp. sensor | F24 | | | |
| | | Heat exchanger 2 gas temp. sensor | F23 | | | |
| Ceiling panel connection failure | | | <<P09>> | Timer and heat ready lamp blinking alternately<br>● | ☼ | ☼ |
| Protective device | Indoor unit | Thermal protector in indoor unit fan motor is activated. | <<P01>> | | | |
| | | Float switch is activated. | <<P10>> | | | |
| | | Fan inverter protection function activated. | <<P12>> | | | |
| | | Oxygen ($O_2$) gas sensor activated | P14 | | | |
| | Outdoor unit | Compressor 1 (INV) discharge temp. trouble | P03 | Operating and heat ready lamp blinking alternately<br>☼ | ● | ☼ |
| | | High-pressure switch or Overload Protector (OLR) | P04 | | | |
| | | Reverse phase (missing phase) detected. | P05 | | | |
| | | DCCT, ACCT overcurrent (compressor less than 80 Hz) | P16 | | | |
| | | Compressor 2 (constant speed) discharge temp. trouble | P17 | | | |
| | | Outdoor unit fan trouble | P22 | | | |
| | | DCCT, ACCT overcurrent (80 Hz or more) | P26 | | | |
| | | Start failure caused by compressor wire missing phase, DCCT failure, or similar problem (INV compressor start failure). | P29 | | | |
| Failure of nonvolatile memory IC (EEPROM) on indoor unit control PCB | | | F29 | Operating and timer lamp blinking simultaneously<br>☼ | ☼ | ● |
| Failure of nonvolatile memory IC (EEPROM) on outdoor unit control PCB | | | F31 | Operating and timer lamp blinking simultaneously<br>☼ | ☼ | ○ |
| Protective device | Overload current detected. | Compressor 2 (constant speed) | H11 | Timer lamp blinking<br>● | ☼ | ● |
| | Lock current detected. | Compressor 2 (constant speed) | H12 | | | |
| | No current detected when compressor was ON. | Compressor 1 (INV) | H03 | | | |
| | | Compressor 2 (constant speed) | H13 | | | |
| | Discharge temp. sensor trouble | Compressor 2 (constant speed) | H15 | | | |
| | Outdoor unit protection | Low-pressure trouble | H06 | | | |
| | Outdoor unit protection | HIC trouble alarm | H31 | | | |
| Connection failure of oil detection sensor | | Compressor 1 (INV) | H08 | | | |
| | | Compressor 2 (constant speed) | H27 | | | |
| Fusing of electromagnetic contact (Current detected when compressor was OFF) | | | ⚠ only blinking | (No display changes) | | |
| Automatic backup operation | | | | | | |

<< >> alarm indication: Does not affect the operation of other indoor units.

< > alarm indication: In some cases may affect the operation of other indoor units.

## 2. Outdoor Unit Control PCB LED Display

( ○ : ON ☼: Blinking ● : OFF)

| LED (RED) | | Display meaning |
|---|---|---|
| 1 | 2 | |
| ○<br>(Both OFF) | ○ | After the power is turned ON (and automatic address setting is not in progress), no communication with the indoor units in that system is possible. |
| ●<br>(OFF) | ○<br>(ON) | After power is turned ON (and automatic address setting is not in progress), 1 or more indoor units are confirmed in that system; however, the number of indoor units does not match the number that was set. |
| ●<br>(Both OFF) | ● | Automatic address setting was completed successfully. (After the power is turned ON, and automatic address setting is not in progress, the number of detected indoor units connected to that system matches the number that was set, and regular communications are occurring.) |
| ☼<br>(Blinking alternately) | ☼ | Automatic address setting is in progress. |
| ☼<br>(Both blinking) | ☼ | At time of automatic address setting, the number of indoor units did not match the number that was set. |
| ☼<br>(Blinking alternately) | ☼ | Alarm display<br>LED 1 blinks M times, then LED 2 blinks N times. The cycle then repeats.<br>M = 2: P alarm 3: H alarm 4: E alarm 5: F alarm 6: L alarm<br>N = Alarm No.<br>Example: LED 1 blinks 2 times, then LED 2 blinks 17 times. The cycle then repeats.<br>Alarm is “P17.” |

# 3. W-3WAY VRF Alarm Codes

## W-3WAY VRF Trouble Diagnosis

| Alarm code | Alarm meaning | Page |
|---|---|---|
| E06 | Outdoor unit failed to receive serial communication signals from indoor unit. | **3-6** |
| E12 | Automatic address setting start is prohibited. | **3-6** |
| E15 | Automatic address setting alarm (too few units) | **3-6** |
| E16 | Automatic address setting alarm (too many units) | **3-7** |
| E20 | No indoor units at automatic address setting. | **3-7** |
| E24 | Outdoor unit (INV) failed to receive communications from another outdoor unit (constant-speed). | **3-7** |
| E25 | Outdoor unit address setting failure (duplication) | **3-8** |
| E26 | Mismatch in outdoor unit quantity | **3-8** |
| E29 | Outdoor unit failed to receive communication from relay control unit | **3-8** |
| F04 | Compressor 1 discharge temperature sensor trouble | **3-9** |
| F05 | Compressor 2 discharge temperature sensor trouble | **3-9** |
| F06 | Gas temperature sensor trouble at outdoor heat exchanger 1 (In) | **3-10** |
| F07 | Liquid temperature sensor trouble at outdoor heat exchanger 1 (Out) | **3-10** |
| F08 | Outdoor air temperature sensor trouble | **3-11** |
| F12 | Compressor intake temperature sensor trouble | **3-11** |
| F16 | High-pressure sensor trouble | **3-11** |
| F17 | Low-pressure sensor trouble | **3-13** |
| F23 | Gas temperature sensor trouble at outdoor heat exchanger 2 (In) | **3-10** |
| F24 | Liquid temperature sensor trouble at outdoor heat exchanger 2 (Out) | **3-10** |
| F31 | Outdoor unit non-volatile memory (EEPROM) trouble | **3-13** |
| H03 | Compressor 1 CT sensor disconnected or short-circuit. | **3-13** |
| H11 | Constant speed compressor 2 over current alarm | **3-16** |
| H12 | Constant speed compressor 2 lock current alarm | **3-16** |
| H06 | Low-pressure trouble in refrigerant circuit. | **3-14** |
| H07 | No oil alarm | **3-18** |
| H08 | Compressor 1 oil detection sensor (connection) trouble | **3-15** |
| H13 | Compressor 2 CT sensor disconnected or short-circuit | **3-13** |
| H15 | Compressor 2 discharge temperature sensor disconnected | **3-17** |
| H27 | Compressor 2 lock current alarm | **3-15** |
| H31 | HIC trouble alarm | **3-19** |
| L04 | Outdoor unit address duplication | **3-19** |
| L10 | Outdoor unit capacity not set | **3-20** |
| L17 | Outdoor unit model mismatch | **3-20** |
| P03 | Compressor 1 discharge temperature trouble | **3-21** |
| P04 | High-pressure switch activated | **3-23** |
| P05 | Reverse phase (or missing phase) detected | **3-24** |
| P16 | Compressor 1 over current | **3-24** |
| P17 | Compressor 2 discharge temp trouble | **3-21** |
| P22 | Fan motor trouble | **3-25** |
| P26 | Inverter compressor high-frequency over current alarm | **3-25** |
| P29 | Inverter compressor missing phase or lock alarm | **3-25** |

| | | |
|---|---|---|
| Blinking ⚠ on the wired remote controller | CHECK blinking (1) | **3-26** |
| | CHECK blinking (2) | **3-27** |

# 3. W-3WAY VRF Alarm Codes

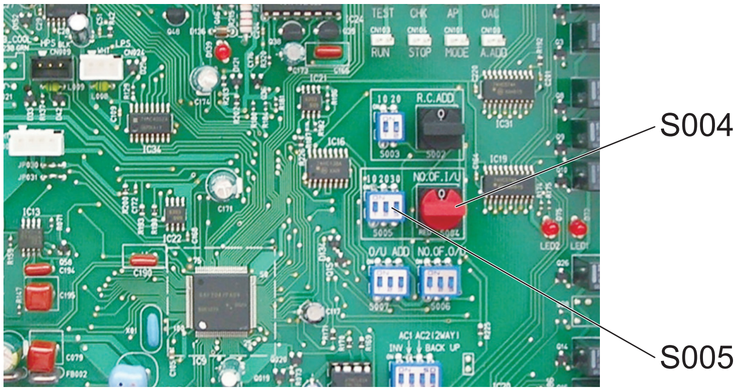
**E06 Alarm**

| **Alarm code** | **E06** |
|---|---|
| Alarm meaning | Outdoor unit failed to receive serial communication signals from indoor unit. |
| Alarm conditions | Outdoor unit failed to receive serial communication signals from indoor unit. |
| Probable cause | (1) The indoor unit power was cut OFF after initial communications were completed.<br>(2) An open circuit or short circuit occurred in the inter-unit control wiring after initial communications were completed. |
| Check | Check the power at the indoor and outdoor units, and check the inter-unit control wiring. |
| Correction | — |
| Example | — |
| Notes | This alarm is detected after initial communications are completed. Therefore, it does not occur in cases of "disconnected serial connector," "no terminal unit set," or other trouble that occurs before initial communications are completed. If initial communications have not been completed, alarm E04 occurs. |

**E12 Alarm**

| **Alarm code** | **E12** |
|---|---|
| Alarm meaning | Automatic address setting start is prohibited. |
| Alarm conditions | Automatic address setting was started when automatic address setting was in progress at another outdoor unit in the same link. |
| Probable cause | Automatic address setting is in progress at another outdoor unit. |
| Check | This alarm is not displayed on the remote controller. Therefore check the blinking on the outdoor unit PCB. |
| Correction | Wait for automatic address setting to be completed at the outdoor unit where it is currently in progress. Then start automatic address setting again. |
| Example | — |
| Notes | — |

**E15 Alarm**

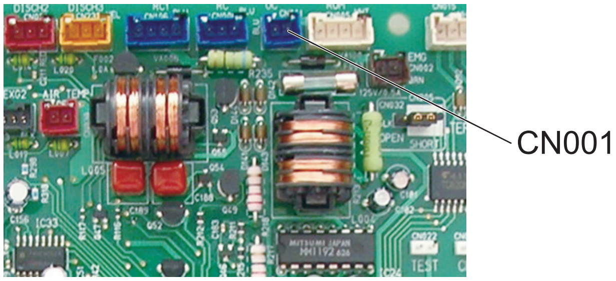
| **Alarm code** | **E15** |
|---|---|
| Alarm meaning | Automatic address setting alarm (too few units) |
| Alarm conditions | The number of indoor units was too few when automatic address setting was performed. |
| Probable cause | (1) The number of indoor units set at the indoor unit quantity setting SW (No. of I/U: S004, S005) on the outdoor unit PCB is too many.<br>(2) The inter-unit control wiring between indoor units has been cut. |
| Check | (1) Refer to the test run servicing materials and check the indoor unit quantity setting SW (No. of I/U: S004, S005).<br>(2) Check the inter-unit control wiring at the indoor and outdoor units. |
| Correction | After correcting the indoor unit quantity setting or the inter-unit control wiring, perform automatic address setting again. |
| Example | — |
| Notes | W-3WAY VRF switch position<br> |

# 3. W-3WAY VRF Alarm Codes

### E16 Alarm

| **Alarm code** | **E16** |
|---|---|
| Alarm meaning | Automatic address setting alarm (too many units) |
| Alarm conditions | • There were a number of indoor units was too many when Automatic address setting was performed.<br>• After initial communications were completed, an unrecognized unit was detected. |
| Probable cause | (1) The SW for setting the number of indoor units is incorrect.<br>(2) The inter-unit control wiring is wired incorrectly. |
| Check | (1) Refer to the test run servicing materials and check the number of indoor units that is set.<br>(2) Check the inter-unit control wiring at the indoor and outdoor units. |
| Correction | After correcting the indoor unit quantity setting or the inter-unit control wiring, perform automatic address setting again. |
| Example | — |
| Notes | — |

### E20 Alarm

| **Alarm code** | **E20** |
|---|---|
| Alarm meaning | No indoor units at automatic address setting. |
| Alarm conditions | When automatic address setting was performed, no indoor units were recognized. |
| Probable cause | (1) The inter-unit control wiring from the outdoor unit to the indoor units has been cut.<br>(2) Serial connector (OC: CN001) is disconnected at the outdoor unit.<br>(3) The power is OFF at all indoor units in the system. |
| Check | (1) Check whether the inter-unit control wiring from the outdoor unit to the indoor units is cut.<br>(2) Check whether serial connector (OC: CN001) is disconnected at the outdoor unit.<br>(3) Check the power at the indoor units. |
| Correction | (1) Reconnect the inter-unit control wire from the outdoor unit to the indoor unit. |
| Example | — |
| Notes | Position of serial connector (OC: CN001) on W-3WAY control PCB<br><br> |

### E24 Alarm

| **Alarm code** | **E24** |
|---|---|
| Alarm meaning | Outdoor unit (main) failed to receive signal from other outdoor unit (sub). |
| Alarm conditions | After initial communications were completed, communications from an outdoor unit stopped. |
| Probable cause | (1) After initial communications were completed, the outdoor unit main/sub control wiring was cut.<br>(2) After initial communications were completed, the outdoor unit power was turned OFF. |
| Check | — |
| Correction | — |
| Example | — |
| Notes | — |

## 3. W-3WAY VRF Alarm Codes

### E25 Alarm

| **Alarm code** | **E25** |
|---|---|
| Alarm meaning | Outdoor unit address setting failure (duplication) |
| Alarm conditions | Communication by the outdoor unit main/sub control wiring was received that contained the same address as that unit 5 times or more within 3 minutes. |
| Probable cause | The unit number is set incorrectly. |
| Check | Check the unit number again. |
| Correction | Correct the incorrect unit number setting. |
| Example | — |
| Notes | Recovery from this alarm occurs automatically (when communication that contains the same address is not received for 3 minutes). |

### E26 Alarm

| **Alarm code** | **E26** |
|---|---|
| Alarm meaning | Mismatch in outdoor unit quantity |
| Alarm conditions | After power initialization, the set outdoor unit quantity did not match the number of outdoor units detected on the outdoor unit main/sub control wiring for 3 minutes or longer. |
| Probable cause | (1) The outdoor unit quantity is set incorrectly.<br>(2) The outdoor unit main/sub control wiring is cut. |
| Check | (1) Check the outdoor unit quantity setting again.<br>(2) Check the outdoor unit main/sub control wiring. |
| Correction | (1) Correct the incorrect outdoor unit quantity setting.<br>(2) Repair the outdoor unit main/sub control wiring. |
| Example | — |
| Notes | Recovery from this alarm occurs automatically (when the set outdoor unit quantity matches the number of outdoor units detected on the outdoor unit main/sub control wiring). |

### E29 Alarm

| **Alarm code** | **E29** |
|---|---|
| Alarm meaning | Outdoor unit (sub) failed to receive signal from outdoor unit (main). |
| Alarm conditions | Outdoor unit (sub) communications from outdoor unit (main) were interrupted for 3 minutes or longer. |
| Probable cause | (1) After initial communications were completed, the outdoor unit main-sub control wiring was cut.<br>(2) After initial communications were completed, the RC connector (CN006) became disconnected.<br>(3) The power at the outdoor unit (main) is turned OFF. |
| Check | (1) Check the outdoor unit main/sub control wiring.<br>(2) Check the RC connectors.<br>(3) Check the power at the outdoor unit (main/sub). |
| Correction | (1) Repair the outdoor unit main/sub control wiring.<br>(2) Correct the RC connector connection.<br>(3) Turn ON the outdoor unit (main/sub) power. |
| Example | — |
| Notes | — |

## 3. W-3WAY VRF Alarm Codes

### F04, F05 Alarm

| **Alarm code** | **F04, F05** |
|---|---|
| Alarm meaning | F04: Compressor 1 discharge temperature sensor (DISCH1) trouble.<br>F05: Compressor 2 discharge temperature sensor (DISCH2) trouble. |
| Alarm conditions | (1) Discharge temp. of 212°F or higher was detected 20 minutes or more after that compressor stopped operating.<br>(2) Discharge temp. of 176°F or higher was detected after all compressors had been stopped for 60 minutes or longer.<br>(3) A/D step is 10 steps or less (short circuit). |
| Probable cause | (1) Sensor malfunction<br>• Sensor element malfunction<br>• Sensor wiring is partially disconnected, resulting in increased electrical resistance.<br>☆This alarm does not occur when the wiring is cut or when the connector is not connected to the outdoor unit control PCB.<br>(2) Crossed wiring or installation error<br>• The discharge temperature sensor of that compressor is connected to the discharge tube of the other compressor.<br>• The connector for the discharge temperature sensor of the problem compressor is connected to the outdoor unit PCB connector for the other compressor.<br>(3) Outdoor unit PCB failure<br>(4) The check valve on the discharge tube for that compressor is wet.<br>(5) An air short blockage in the area around the outdoor unit has increased the outdoor unit ambient temperature, reducing the cooling effects after the compressor stops.<br>(6) There is a cause that results in P03, P17, or P18 alarm.<br>(7) Electrical noise. |
| Check | (1) Sensor malfunction and outdoor unit PCB failure<br>Trouble: • Constantly indicates a high temperature.<br>• When monitoring software or other means are used for monitoring, the discharge temperature at times fluctuates suddenly and wildly.<br>• In some cases, the precise temperature may not be known, even when monitoring software is used.<br>Check: • Wiggle the sensor and check whether the trouble continues.<br>• Check whether the connector is partially disconnected from the PCB.<br>☆ An F04 alarm will not result if the connector is completely disconnected (circuit is open).<br>• If the cause is still uncertain, check the following to determine whether a sensor or PCB failure has occurred.<br>Step 1: Connect the other compressor discharge sensor, or a discharge sensor where the F04 alarm has not occurred, to the connector for this compressor on the PCB. Measure the temperature at the same point (a location where temperature fluctuations are small), and check whether there is a temperature difference.<br>Difference → A PCB or sensor failure is possible.<br>No difference → PCB and sensor are normal.<br>Step 2: If an abnormality was found at Step 1, connect the problem compressor sensor to the other compressor connector on the PCB, or to the PCB connector of a device where the F04 alarm has not occurred. Measure the temperature at the same point (a location where temperature fluctuations are small), and check whether there is a temperature difference.<br>Difference → Sensor failure.<br>No difference → PCB failure.<br>☆ It is convenient at this time to have a discharge temperature sensor on hand.<br>(2) Crossed wiring or installation error<br>Trouble: Although the other compressor is operating and this compressor is stopped, the discharge temperature of the other compressor does not increase and the discharge temperature of this compressor rises.<br>* The discharge temperature remains high immediately after the compressor stops. Wait for some time after the compressor stops and observe.<br>Check: Check for crossed wiring and installation errors. |

Continued

| | |
|---|---|
| Check | (3) Leakage from the discharge tube check valve<br>Trouble: Although the other compressor is operating and this compressor is stopped, the discharge temperature of this compressor rises together with the temperature of the other compressor.<br>(4) The ambient temperature around the outdoor unit when it is stopped is 109°F or higher. |
| Correction | (1) Replace the sensor.<br>(2) Replace the outdoor unit PCB.<br>(3) Carry out noise countermeasures.<br>(4) Repair the refrigerant tubing.<br>(5) Adjust the amount of refrigerant.<br>(6) Correct the trouble. |
| Example | (1) Sensor wiring is partially cut. |
| Notes | This alarm does not indicate that the sensor is disconnected.<br>In order to prevent overheating during operation, the outdoor units in this system will not allow a compressor to start if the discharge temperature does not decrease while the compressor is stopped. If a sensor malfunction results in continuous detection of a high discharge temperature, then the compressor may stop for no apparent reason. The purpose of this alarm is to facilitate identification of the problem in this case. |

**F06, F23 Alarm**

| **Alarm code** | **F06, F23** |
|---|---|
| Alarm meaning | F06: Gas temperature sensor (EXG1) trouble at outdoor heat exchanger 1<br>F23: Gas temperature sensor (EXG2) trouble at outdoor heat exchanger 2 |
| Alarm conditions | (1) A/D step is 10 steps or less (short circuit).<br>(2) A/D step is 1014 steps or more (open circuit). |
| Probable cause | (1) Sensor malfunction (including connector)<br>(2) PCB malfunction |
| Check | (1) Measure the sensor resistance. Check that the sensor is operating normally.<br>(2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer. |
| Correction | — |
| Example | — |
| Notes | — |

**F07, F24 Alarm**

| **Alarm code** | **F07, F24** |
|---|---|
| Alarm meaning | F07: Liquid temperature sensor (EXL1) trouble at outdoor heat exchanger 1<br>F24: Liquid temperature sensor (EXL2) trouble at outdoor heat exchanger 2 |
| Alarm conditions | (1) A/D step is 10 steps or less (short circuit).<br>(2) A/D step is 1014 steps or more (open circuit). |
| Probable cause | (1) Sensor malfunction (including connector)<br>(2) PCB malfunction |
| Check | (1) Measure the sensor resistance. Check that the sensor is operating normally.<br>(2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer. |
| Correction | — |
| Example | — |
| Notes | — |

## 3. W-3WAY VRF Alarm Codes

**F08 Alarm**

| **Alarm code** | **F08** |
|---|---|
| Alarm meaning | Outdoor air temperature sensor (AIR TEMP) trouble |
| Alarm conditions | (1) A/D step is 10 steps or less (short circuit).<br>(2) A/D step is 1014 steps or more (open circuit) |
| Probable cause | (1) Sensor malfunction (including connector)<br>(2) PCB malfunction |
| Check | (1) Measure the sensor resistance. Check that the sensor is operating normally.<br>(2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer. |
| Correction | — |
| Example | — |
| Notes | — |

**F12 Alarm**

| **Alarm code** | **F12** |
|---|---|
| Alarm meaning | Compressor intake temperature sensor (SCT) trouble |
| Alarm conditions | (1) A/D step is 10 steps or less (short circuit).<br>(2) A/D step is 1014 steps or more (open circuit) |
| Probable cause | (1) Sensor malfunction (including connector)<br>(2) PCB malfunction |
| Check | (1) Measure the sensor resistance. Check that the sensor is operating normally.<br>(2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer. |
| Correction | — |
| Example | — |
| Notes | — |

**F16 Alarm**

| **Alarm code** | **F16** |
|---|---|
| Alarm meaning | High-pressure sensor trouble (abnormal rise in high pressure) (In some cases this may not be the result of a high-pressure sensor malfunction.) |
| Alarm conditions | • High-pressure SW activated although the detected pressure was lower (3.03 MPa or below) than the high-pressure SW activation pressure: Undershift<br>• High-pressure SW failed to activate although the detected pressure was higher (3.43 MPa or above) than the high-pressure SW activation pressure: Overshift<br>• The saturation temperature at the detected pressure is 5°C or more below the highest indoor-unit E1 temperature continuously for 30 minutes.<br>• High-pressure sensor disconnected or open circuit. |
| Probable cause | (1) High-pressure sensor malfunction<br>(2) Failure to connect the connector to the outdoor unit PCB<br>(3) Failure to open the service valve<br>(4) Clogged tubing<br>(5) Valve leakage<br>(6) Over-charging<br>(7) Outdoor unit PCB failure<br>(8) Electrical noise |

Continued

| | |
|---|---|
| Check | (1) High-pressure sensor failure<br>・Check the sensor resistance value. (Use a tester and measure the resistance between sensor No.1 and No.3)<br>Resistance of less than 10kΩ indicates a short circuit or other trouble.<br>Resistance of 10kΩ - 200kΩ is normal. Resistance of more than 200kΩ indicates an open circuit or other trouble.<br>・Connect a gauge to the high-pressure outlet and check for chenges in the value displayed by the monitoring software, and for large deviation of the gauge pressure.<br>・During heating, check whether the temperature is lower than the highest indoor-unit E1 temperature.<br>* The pressure detected by the high-pressure sensor is the highest pressure in the system. Therefore during heating the converted saturation temperature will never be lower than any indoor-unit E1 temperature. During cooling this temperature will never be lower than the outdoor unit liquid temperature.<br>(2) Failure to open the service valve, clogged tubing, valve leakage, over-charging in all of these cases, an alarm occurs when there are rapid pressure fluctuations and tracking of the detected pressure is poor.<br>・Check the open/closed status of the valve.<br>・Check for clogging of the tubing.<br>To check for clogging, disconnect the high-pressure sensor from the PCB and check whether the high-pressure SW activates.<br>・Check for valve leakage and over-charging<br>When valve leakage or over-charging occurs, refrigerant is likely to accumulate in the outdoor units or indoor units, resulting in a sudden rise in pressure at start that occurs before the refrigerant in the heat exchanger is discharged.<br>* The representative valves to check are the liquid valves and mechanical valves.<br>(3) Outdoor unit PCB failure<br>・The check items are the same as for a high-pressure sensor malfunction.<br>A normal PCB is needed to determine whether the problem is a PCB failure or a pressure sensor malfunction. If an abnormality was found at the check items for a high-pressure sensor malfunction, first try replacing the PCB and check again.<br>Trouble is corrected: Outdoor unit PCB failure<br>Trouble is not corrected: High-pressure sensor malfunction |
| Correction | (1) Replace the high-pressure sensor.<br>Caution: Because the high-pressure sensor connection employs a Schrader-type valve, it can be removed and replaced. However, the high-pressure sensor can be easily damaged by high voltage; therefore use sufficient caution with regard to static electricity.<br>(2) Replace the PCB.<br>(3) Correct the locations of problems in the refrigeration cycle.<br>・Correct locations where clogging or leakage has occurred.<br>・In the case of over-charging, recover refrigerant. (Adjust the amount of refrigerant).<br>* Guide for over-charging<br>Be sure to connect the gauge to the high-pressure pressure outlet when checking for over-charging.<br>During cooling: The following does not apply when outdoor air temperature is low or when fan speed is controlled. When both compressor 1 and compressor 2 are operating, and the fan mode is 14 (maximum fan speed), then the high pressure saturation temperature should be approximately 15°C above the outdoor air temperature. If it is 5°C or more above this level, then it is possible that over-charging may have occurred.<br>During heating: There is an indoor unit where refrigerant flow is poor (E1 temperature and discharge temperature are low), and the mechanical valve of that unit is opened to 300 pulses or more, and the E1 temperature is close to room temperature. However be aware that this kind of data results often when there is a height difference between indoor units. Reducing the amount of refrigerant will improve the refrigerant flow, however reducing it too much will increase the likelihood of alarms related to low oil level (scroll-side), the low pressure SW, and discharge temperature. Use caution. |
| Example | This alarm may result when the service valve is closed or when valve leakage (particularly from the mechanical valve) occurs. |

## 3. W-3WAY VRF Alarm Codes

**F17 Alarm**

| **Alarm code** | **F17** |
|---|---|
| Alarm meaning | Low-pressure sensor (LPS) trouble |
| Alarm conditions | (1) Sensor short circuit<br>(2) Sensor open circuit |
| Probable cause | (1) Sensor malfunction (including connector)<br>(2) PCB malfunction |
| Check | (1) Measure the sensor resistance. Check that the sensor is operating normally.<br>(2) Use a remote monitor or a PC monitor to check the temperature that is recognized by the microcomputer. |
| Correction | — |
| Example | — |
| Notes | — |

**F31 Alarm**

| **Alarm code** | **F31** |
|---|---|
| Alarm meaning | Outdoor unit non-volatile memory (EEPROM) trouble |
| Alarm conditions | (1) Non-volatile memory is not present when power initialization occurs.<br>(2) Read values do not match after writing to non-volatile memory is complete. |
| Probable cause | (1) Memory was not inserted after the PCB was replaced.<br>(2) The lifetime of the non-volatile memory has been reached.<br>(3) Non-volatile memory is installed incorrectly (wrong direction, bent pins, etc.). |
| Check | (1) Check the non-volatile memory on the PCB. |
| Correction | — |
| Example | — |
| Notes | — |

**H03, H13 Alarm**

| **Alarm code** | **H03, H13** |
|---|---|
| Alarm meaning | H03: Compressor 1 CT sensor disconnected or short-circuit.<br>H13: Compressor 2 CT sensor disconnected or short-circuit. |
| Alarm conditions | Compressor 1: Current value of more than 18.0 A is detected while the compressor 1 is stopped.<br>Compressor 2: Current value at compressor 2 is less than 2.0 A when 2 seconds or more had passed after the compressors began operation and output.<br>* No current is detected even though the compressors are operating. |
| Probable cause | (1) CT circuit failure (including cut wiring, etc.)<br>(2) Disconnected CT circuit connector<br>(3) Missing phase where CT circuit is connected.<br>(4) This CT circuit is connected to the connector of the other CT circuit.<br>(5) PCB failure<br>(6) Noise |
| Check | (1) CT circuit failure, PCB failure<br>Trouble: • Current value during compressor operation is below the threshold value.<br>Check: • Check that the connector is not disconnected.<br>• Check the continuity of the CT circuit.<br>• Install a normal CT in place of this CT and check. If current is detected, then the PCB can be judged OK.<br>→ CT circuit failure<br>• Check that current is flowing in the phase where the CT circuit is connected.<br>→ Check voltage and current.<br>(2) Crossed wiring or installation error<br>Trouble: When the compressor is stopped, the current value at the other compressor is high.<br>* When this type of condition occurs, seizing-detection control takes priority.<br>(3) If the cause is still unknown after checking the above, then it is possible that noise is the cause of the trouble. It is necessary to connect a PC or other instrument. |
| Correction | (1) Replace the CT circuit.<br>(2) Replace the outdoor unit PCB.<br>(3) Correct the problem. |
| Example | (1) The connector was not inserted after the PCB was replaced. |
| Notes | Use a normal CT as a tool to determine whether the trouble is a PCB failure or CT failure. |

**H06 Alarm**

| **Alarm code** | **H06** |
|---|---|
| Alarm meaning | Abnormal low-pressure drop |
| Alarm conditions | A pre-trip occurs during the unit's operation when the low-pressure sensor installed at constant low-pressure parts detects a pressure of 7.25 psi or less continuously for 2 minutes, or an instantaneous pressure of 2.90 psi or less. (These values represent abnormal low pressure which may damage the compressor.)<br>However, the alarm does not actually occur the first 4 times that the above operation takes place. At these times, the outdoor unit is stopped and the conditions are monitored. The alarm occurs when the above operation occurs for the fifth time. The first 4 times before the alarm occurs are called "pre-trip." After pre-trip occurs, if the low-pressure sensor detects a pressure of 21.8 psi or more for 3 minutes of continuous operation, the pre-trip count is reset to 0.<br>If the low-pressure sensor detects a pressure of 23.2 psi or less continuously for 30 minutes when the compressor is stopped, an alarm occurs immediately (no pre-trip). |
| Probable cause | The unit low pressure has dropped to a level that does not occur under ordinary conditions.<br>(1) The absolute amount of gas in the system is too low (as a result of insufficient refrigerant charge or leak).<br>(2) The refrigerant has accumulated in the circuit and has not returned to the compressor. Refrigerant has accumulated in a location of one-way flow and cannot escape. High-pressure level is low, resulting in poor flow of refrigerant in the circuit. (A lower high-pressure level results in a smaller difference between low pressure and high pressure, that may be insufficient to cause refrigerant flow.)<br>(3) The refrigerant circuit has become closed, and refrigerant has not returned to the compressor. In some cases when moisture enters the refrigerant circuit, it can freeze at the low-pressure locations and the resulting ice can block the circuit.)<br>☆ If the alarm occurs when there is sufficient refrigerant in the system ((1) and (3)), liquid refrigerant has definitely accumulated somewhere in the system. Liquid refrigerant generally accumulates in high-pressure locations. In this case the high pressure gradually increases (however it may not increase if the location where the liquid accumulates is sufficiently large). Depending on the refrigerant saturation temperature, it may also accumulate in low-pressure locations. In this case the high pressure is unlikely to increase. |
| Check | (1) Check that the service valve is open.<br>(2) Check that none of the valves (mechanical valves), solenoid valves in the main refrigerant circuit is closed due to an operation failure.<br>(3) Check that there is no possibility of foreign objects or water having entered the refrigerant circuit.<br>(4) Check that valve leakage at a stopped sub unit has not resulted in accumulation of refrigerant at that sub unit.<br>(5) Check that no refrigerant leakage has occurred. |
| Correction | (1) If there was a valve operation failure, in general it is necessary to replace the valve.<br>(2) If a foreign object or moisture has entered the circuit, install a strainer or dry core (depending on the degree of the problem).<br>(3) If refrigerant has leaked into stopped sub units, it is likely that valve leakage has occurred. The valve must be replaced. |
| Example | — |
| Notes | — |

## 3. W-3WAY VRF Alarm Codes

**H08, H27 Alarm**

| **Alarm code** | **H08, H27** |
|---|---|
| Alarm meaning | H08: Trouble (open circuit) with the oil sensor (connection) at compressor 1<br>H27: Trouble (open circuit) with the oil sensor (connection) at compressor 2 |
| Alarm conditions | This alarm occurs when a connector connection (pins 1 and 2 for compressor 1, pins 4 and 5 for compressor 2, and pins 7 and 8 for compressor 3) is open. |
| Probable cause | Disconnected connector. |
| Check | Check that the connector is securely connected. |
| Correction | (1) Connect the connector.<br>(2) Correct the connection at connector pins 4 and 5. |
| Example | — |
| Notes | |

## 3. W-3WAY VRF Alarm Codes

### H11, H12 Alarm

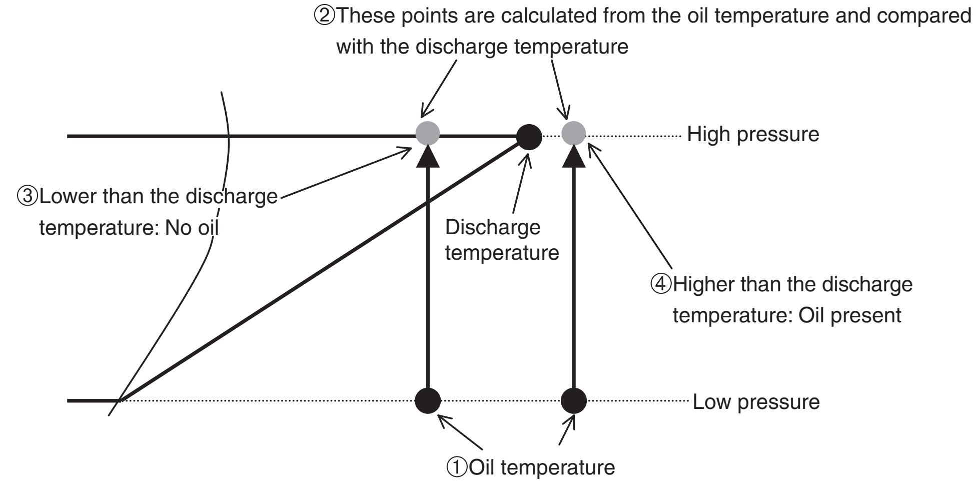
| **Alarm code** | **H11, H12** |
|---|---|
| Alarm meaning | H11: Compressor 2 (constant speed) overcurrent alarm<br>H12: Compressor 2 (constant speed) lock current alarm |
| Alarm conditions | H11: During operation, the compressor current value exceeded 23.1 A for 30 seconds or longer. However this alarm is not detected for 4 seconds after the compressor starts.<br>H12: During operation, the compressor current value exceeded 27.3 A for 4 seconds or longer. However this alarm is not detected for 2 seconds after the compressor starts. |
| Probable cause | (1) Compressor failure (locked or partially locked)<br>(2) CT (Current Transformer) circuit failure (including cut wiring)<br>(3) Missing power phase<br>(4) Low power voltage<br>(5) PCB failure |
| Check | (1) Compressor failure (partially locked)<br>Trouble: Current value during operation greatly exceeds the value shown above.<br>Check: When the current for each phase is measured with a clamp meter or similar instrument, check that the current value for all phases is not high. If MG was forced ON (use caution), check that compressor noise will not occur or the compressor will not run with a groaning sound.<br>(2) CT circuit failure, PCB failure<br>Trouble:<br>Check: · Check for poor connector contact.<br>· Check the continuity of the CT circuit.<br>· Install a normal CT in place of this CT and check. If current is detected, then the PCB can be judged OK.<br>→CT circuit failure<br>· Check that current is flowing in the phase where the CT circuit is connected.<br>→Check voltage and current.<br>(3) Missing power phase<br>Trouble: This alarm primarily occurs when the T-phase is missing. When the R-phase or S-phase is missing, CT trouble or PCB continuity trouble occur. However this may not be true in case of missing phase caused by magnet SW trouble.<br>Check: There is the possibility of a magnet SW failure. Therefore, check the phase voltage at a location that is as close to the compressor as possible.<br>(4) Low power voltage<br>Trouble: In most cases, this occurs when another constant-speed compressor (including compressors in other units) or other device starts. It also occurs when the power wiring is extremely long.<br>Check: Check the voltage between each of the phases. However if this trouble occurs when other devices or compressors start, then an oscilloscope is required.<br>(5) PCB failure<br>Trouble:<br>Check: Check that the current value measured with the clamp meter is not lower than the value measured with the PC or remote controller.<br>(6) If the cause is still unknown after checking the above, then it is possible that noise is the cause of the trouble. If is necessary to connect a PC or other instrument. |
| Correction | (1) Replace the compressor.<br>(2) Replace the CT circuit.<br>(3) Repair the power circuit.<br>(4) Adjust the primary-side power. Repair the power wiring.<br>(5) Replace the outdoor unit PCB.<br>(6) Correct the trouble.<br>* In the case of a compressor failure, it is likely that steps must be taken to correct the cause of the compressor failure (such as liquid back-up) in order to prevent recurrence. Be sure to check that there is no cause which may result in compressor locking. |
| Example | — |

# 3. W-3WAY VRF Alarm Codes

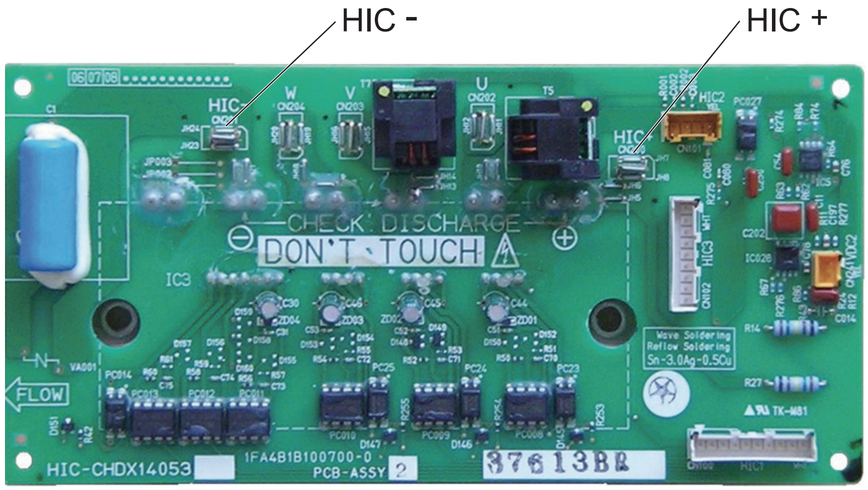
### H15 Alarm

| **Alarm code** | **H15** |
|---|---|
| Alarm meaning | H15: Compressor 2 discharge temperature sensor (DISCH2) disconnected. |
| Alarm conditions | • This alarm occurs when the discharge sensor temperature detector is not inserted into the tube's sensor holder, or when the sensor itself has suffered some kind of malfunction other than a cut wire.<br>• When outdoor air temperature is 32°F or higher:<br>Alarm occurs if the temperature detected by the discharge sensor has changed by less than 4 deg. when the compressor has operated for 10 minutes immediately after start.<br>• When outdoor air temperature is below 32°F:<br>Alarm occurs if the temperature detected by the discharge sensor has changed by less than 4 deg. when the compressor has operated for 30 minutes immediately after start. |
| Probable cause | (1) Discharge sensor temperature detector is not inserted into the tube's sensor holder.<br>(2) Discharge sensor itself has suffered some kind of malfunction other than a cut wire. |
| Check | (1) Check that the discharge temperature sensor is inserted into the sensor holder.<br>(2) Check that sufficient heat-conducting putty is applied.<br>(3) Remove the discharge sensor from the sensor holder and expose the sensor to the outside air for approximately 5 minutes. Check that the temperature detected by the sensor changes to match the outside air temperature. (However the sensor cannot detect temperatures at or below 32°F.) |
| Correction | (1) Install the sensor into the holder, and apply sufficient heat-conducting putty.<br>(2) If the sensor is malfunctioning, replace it. |
| Example | — |
| Notes | The discharge temperature sensor is generally a sensor intended for accurate detection of high temperatures. Therefore, it will not accurately detect the temperature if the temperature at the measurement point is 68°F or below. |

### H07 Alarm

| **Alarm code** | **H07** |
|---|---|
| Alarm meaning | No-oil alarm |
| Alarm conditions | This alarm occurs when oil does not flow for a specified amount of time in tubing where oil flow constantly. (The presence of oil is detected by a temperature sensor.)<br>Judgment method:<br>Tcal (calculated by the formula below from the oil temperature) is compared with the discharge temperature. If Tcal is higher than the discharge temperature then oil is judged to be present. If Tcal is lower than the discharge temperature, oil is judged to be not present.<br>$Tcal=\{(0.0254 \cdot T\_oil \cdot LP^2 +0.0298 \cdot T\_oil \cdot LP +0.8842 \cdot T\_oil -2.9953 \cdot LP^2 -11.091 \cdot LP +436.94) +2.9953 \cdot HP^2 +11.091 \cdot HP -436.94\}/(0.0254 \cdot HP^2 +0.0298 \cdot HP +0.8842)$<br><br> ②These points are calculated from the oil temperature and compared with the discharge temperature<br>High pressure<br>③Lower than the discharge temperature: No oil<br>Discharge temperature<br>④Higher than the discharge temperature: Oil present<br>Low pressure<br>①Oil temperature |
| Probable cause | Insufficient amount of oil in the system<br>(1) The length of system tubing exceeds the allowable tubing length.<br>(2) The difference in height between system units exceeds the allowable value.<br>(3) A large amount of oil was drained when a compressor was replaced.<br>(4) Oil has accumulated in a stopped outdoor unit and has not returned, as a result of refrigerant circuit clogging or valve leakage at the stopped outdoor unit.<br>(5) A valve (ORVR, BALV, BPB) in the oil circuit has malfunctioned, or there is clogging of the circuit (capillaries) which returns oil from the oil separator to the compressor.<br>(6) If an excessive amount or liquid returns to the compressor, oil foaming may increase oil discharge. The same occurs when the refrigerant proportion in the compressor is high at start, due to an open circuit in the crank case heater.<br>(7) Oil sensor disconnected or open circuit |
| Check | (1) Check the tubing length and height differences.<br>(2) Check the operation of system circuit valves.<br>(3) Check that there is not an excessive amount of liquid return. (Check that there is no mechanical valve leakage.)<br>(4) Check the crank case heater (wintertime).<br>(5) Check that the oil sensor is not disconnected, and that the circuit is not open. |
| Correction | (1) If insufficient oil is a possibility, then charge with additional oil.<br>(2) If it is clear that a valve failure has occurred, replace the valve. |
| Example | |
| Notes | |

### H31 Alarm

| **Alarm code** | **H31** |
|---|---|
| Alarm meaning | HIC trouble alarm |
| Alarm conditions | This alarm occurs when the microcomputer identifies a trouble signal (indicating abnormal HIC temperature or other trouble) from the HIC.<br>The HIC judges the current and temperature, and outputs the trouble signal. In general this indicates trouble with the HIC itself. |
| Probable cause | Overcurrent in HIC circuit, and resultant abnormal heating, caused by HIC failure |
| Check | Check the power wiring and connector wiring. If the wiring and connectors are normal, use a tester to measure the resistance between the compressor HIC power (HIC+) and ground (HIC–). If there is a short circuit, there is an HIC malfunction.<br><br> HIC -<br>HIC +<br>CHECK DISCHARGE<br>DON'T TOUCH<br>FLOW<br>HIC-CHDX14053<br>PCB-ASSY<br>37613BB<br>HIC PCB |
| Correction | If an HIC failure is found, replace the PCB. |
| Example | — |
| Notes | Turn OFF the power, and check the continuity of HIC+ and HIC– on the HIC PCB. |

### L04 Alarm

| **Alarm code** | **L04** |
|---|---|
| Alarm meaning | Outdoor unit refrigerant system address duplication |
| Alarm conditions | Communication by inter-unit control wiring was received that contained the same address as that unit 5 times or more within 3 minutes. |
| Probable cause | Incorrect outdoor system address settings |
| Check | Check the system address settings again. |
| Correction | Correct the system address settings. |
| Example | — |
| Notes | Recovery from this alarm occurs automatically (when communication that contains the same address as that unit is not received for 3 minutes after detection). |

## 3. W-3WAY VRF Alarm Codes

### L10 Alarm

| **Alarm code** | **L10** |
|---|---|
| Alarm meaning | Outdoor unit capacity not set |
| Alarm conditions | The outdoor unit capacity has not been set, or the setting is not allowed by the system. |
| Probable cause | This alarm occurs because the capacity has not been set. |
| Check | Connect the outdoor unit maintenance remote controller. On the outdoor unit EEPROM detailed setting mode screen, check the value for the outdoor unit capacity (item code 81). Check that it is not set to “0” or to a capacity that is not allowed. |
| Correction | If item code 81 is incorrect, use the outdoor unit maintenance remote controller and set it correctly.<br>* After changing the setting, be sure to reset both the indoor and outdoor power. |
| Example | — |
| Notes | The outdoor unit maintenance remote controller is required in order to set the capacity in the outdoor unit EEPROM. |

### L17 Alarm

| **Alarm code** | **L17** |
|---|---|
| Alarm meaning | Outdoor unit model mismatch |
| Alarm conditions | This alarm occurs when a unit other than a R410A refrigerant model is connected. |
| Probable cause | (1) A unit that uses R407C refrigerant, or a R22 model unit, was connected by mistake.<br>(2) The connected unit is correct, however the refrigerant type setting in the outdoor unit EEPROM (item code 80) is incorrect. |
| Check | (1) Check the refrigerant type at the connected unit.<br>(2) Use the outdoor unit maintenance remote controller and check the item code 80 refrigerant type. If the setting is incorrect, change it to R410A. |
| Correction | — |
| Example | — |
| Notes | The outdoor unit maintenance remote controller is required in order to set the refrigerant type in the outdoor unit EEPROM. |

## 3. W-3WAY VRF Alarm Codes

**P03, P17 Alarm**

| **Alarm code** | **P03, P17** |
|---|---|
| Alarm meaning | P03: Compressor 1 discharge temperature trouble.<br>P17: Compressor 2 discharge temperature trouble. |
| Alarm conditions | Pre-trip stop at 222°F (106°C) or higher<br>This alarm occurs when the pre-trip counter reaches 4. However the counter is reset when the compressor has operated continuously for a certain length of time. |
| Probable cause | (1) Operation failure of mechanical valve 3<br>(2) Clogging of mechanical valve 3<br>(3) Insufficient amount of refrigerant (including trouble resulting from an insufficient initial charge and from gas leakage)<br>(4) Blocking of low-pressure parts caused by intrusion of foreign objects (moisture, scale, etc.)<br>(5) Crossing (tubing or PCB connectors) with the other compressor thermistor<br>(6) Expansion valve operation failure<br>(7) Accumulation of refrigerant at stopped outdoor units<br>(8) Compressor discharge sensor failure<br>(9) PCB failure (A/D conversion failure) |
| Check | (1) Operation failure of mechanical valve 3<br>Trouble: The compressor discharge temperature does not decrease even when mechanical valve 3 is opened to 480 pulses.<br>Check: Check whether or not mechanical valve 3 makes a grinding sound when the power is reset.<br>(2) Clogging of mechanical valve 3<br>Trouble: The compressor discharge temperature does not decrease even when mechanical valve 3 is ON.<br>Check: If mechanical valve 3 is open to 480 pulses, then check whether or not the secondary side of the valve is cold.<br>(3) Insufficient refrigerant<br>Trouble: Liquid effectiveness is poor.<br>Check: Check whether or not the superheating temperature is declining if the evaporator mechanical valve is opened to 300 pulses or more (after checking for foreign object intrusion).<br>(4) Foreign object intrusion<br>Trouble: Liquid valve effectiveness is poor.<br>Check: Check that there is no difference in the condensation or frost conditions between the strainer primary-side and secondary-side tubing.<br>(5) Crossed thermistor<br>Trouble: The discharge temperature of the other compressor is high although only this compressor is operating.<br>When the liquid valve turns ON, the discharge temperature of the other compressor decreases.<br>(6) Accumulation of refrigerant in stopped outdoor units<br>Trouble: • System is OK when all outdoor units are operating, however symptoms of insufficient gas occur when a certain outdoor unit is stopped.<br>• Condensation or frost is visible up to the top of the accumulator of the stopped outdoor unit.<br>• After an outdoor unit stops, there is the sound of refrigerant flowing into an outdoor unit that was stopped for a long time.<br>• When an outdoor unit starts after being stopped for a long time, the start is accompanied by much vibration.<br>Check: • In some cases, leakage may be occurring from the evaporator mechanical valve or mechanical valve 3 at a stopped outdoor unit.<br>(7) Sensor failure<br>Check: • This alarm is likely to occur when wiring is partially cut. (It is difficult to identify, even when continuity is checked.) The detected discharge temperature is high.<br>• Although such conditions rarely occur, a P02 alarm is likely if the detected discharge temperature is low.<br>• Replace the sensor with another discharge sensor and compare the temperature conditions. |

Continued

# 3. W-3WAY VRF Alarm Codes

| | |
|---|---|
| Correction | (1) Replace the sensor.<br>(2) Replace the outdoor unit PCB.<br>(3) Correct the problem locations. |
| Example | All of the probable causes |
| Notes | Operates continuously for a set length of time.<br>Indicates 2.5 minutes or longer for an inverter compressor (compressor 1) and 30 seconds or longer for a constant-speed compressor (compressor 2). |

## 3. W-3WAY VRF Alarm Codes

**P04 Alarm**

| **Alarm code** | **P04** |
|---|---|
| Alarm meaning | High-pressure switch activated. |
| Alarm conditions | When the electrical circuit of the high-pressure switch is activated, then depending on the pressure, the terminals may be short-circuited. If the pressure is 551 psi or higher, the terminals will be short-circuited. When they have been short-circuited, they remain short-circuited until the pressure decreases to 456 psi. |
| Probable cause | (1) The check valve installed on the compressor discharge-side tubing has malfunctioned.<br>(2) The service valve is closed.<br>(3) The outdoor unit heat exchanger became clogged during cooling operation.<br>(4) An air short circuit occurred in the outdoor unit during cooling operation.<br>(5) The outdoor unit fan malfunctioned during cooling operation.<br>(6) The indoor unit air filter became clogged during heating operation.<br>(7) An air short circuit occurred in the indoor unit during heating operation.<br>(8) The indoor fan failed during heating operation.<br>(9) The refrigerant circuit has become clogged.<br>(10) The mechanical valve failed.<br>(11) The solenoid valve kit failed.<br>(12) Refrigerant overcharge has occurred.<br>(13) The high-pressure switch failed. |
| Check | (1) Check that the high-pressure switch connector is connected securely.<br>(2) If it is connected securely, then connect a pressure gauge to the high-pressure outlet and monitor the high pressure while operating the system. Check the pressure at the time when the high-pressure switch operates. If the pressure is less than 479 psi then it is possible that the check valve has failed.<br>The following concern cases in which the pressure is actually too high.<br>(3) If the operation is cooling operation, check that the outdoor heat exchanger has not become clogged or blocked. Remove any objects that impede the flow of air.<br>(4) If the operation is cooling operation, check that an air short circuit has not occurred at the outdoor unit. The status is OK as long as the temperature in the area around the outdoor unit does not become abnormally high during operation.<br>(5) If the operation is cooling operation, check that the outdoor unit fan has not failed. Check that the screws which fasten the fan have not become loose. Check that the fan connector has been securely inserted into the outdoor unit PCB.<br>(6) If the operation is heating operation, check that the indoor unit air filter has not become clogged. If it is clogged, clean it.<br>(7) If the operation is heating operation, check that an air short circuit has not occurred at the indoor unit. The status is OK as long as the temperature in the area around the indoor unit air intake does not become abnormally high during operation.<br>(8) If the operation is heating operation, check that the indoor unit fan has not failed.<br>(9) Check that the refrigerant circuit has not become clogged. Check that all the service valves are fully opened. Check that the welded connections are not clogged.<br>(10) Check that the mechanical valves have not failed. Check whether or not mechanical valve 3 makes a grinding sound when the power is reset. At the indoor unit, the mechanical valve is located at a position where it is difficult to hear, so this check should be made electronically. Check that 4 V is being output to the mechanical valve connector pin on the PCB. Also check that the mechanical valve coil winding resistance is several tens of Ohms.<br>(11) Check that the solenoid valve kit has not failed. Removing the coil when the valve is ON should produce a click sound. Removing the coil when the valve is OFF should produce no sound.<br>(12) Check that refrigerant overcharge has not occurred. If the sub-cool temperature at the condenser discharge is 59°F or higher, overcharge has occurred. |
| Correction | Replace the failed part and correct the amount of refrigerant charge. |
| Example | — |
| Notes | — |

## 3. W-3WAY VRF Alarm Codes

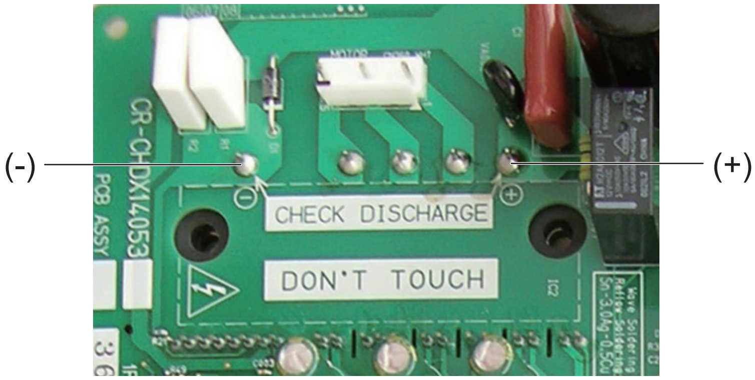
### P05 Alarm

| **Alarm code** | **P05** |
|---|---|
| Alarm meaning | Reverse phase (or missing phase) detected |
| Alarm conditions | This alarm occurs when a reverse phase or missing phase is detected in the L1-L2-L3 phases. |
| Probable cause | Reverse phase or missing phase in the L1-L2-L3 phases |
| Check | Check the wiring at the power terminal plate. |
| Correction | Switch the phases and reinsert. Check if the result is OK. |
| Example | — |
| Notes | — |

### P16 Alarm

| **Alarm code** | **P16** |
|---|---|
| Alarm meaning | Compressor 1 (INV) overcurrent alarm |
| Alarm conditions | This alarm occurs when current trouble or current detection trouble occurs at an inverter frequency of less than 80 Hz after start (when trouble judgment current is detected in the primary or secondary current, or when an instantaneous secondary current of 48 A or higher is detected). |
| Probable cause | There is a strong possibility of a compressor failure.<br>An alarm occurs for current detection trouble when it is judged that no current is flowing after start (DCCT is damaged). In this case, the cause is a DCCT failure. |
| Check | Check the power wiring and connector wiring. |
| Correction | It is possible to resolve this trouble by limiting the maximum frequency. |
| Example | — |
| Notes | — |

**P22 Alarm**

| **Alarm code** | **P22** |
|---|---|
| Alarm meaning | Fan motor trouble |
| Alarm conditions | Fan motor start failure, fan motor Hall IC input failure |
| Probable cause | Possible causes are a Hall IC input circuit failure and a fan HIC failure. |
| Check | Check the fan motor wiring, the Hall IC wiring, and the connector connections. If the wiring and connectors are normal, then check that the capacitor of the Hall IC input circuit is securely soldered onto the PCB. Also use a tester and measure the resistance between fan HIC power (HIC+) and ground (HIC–). If there is a short circuit, there is an HIC malfunction.<br><br> (-)<br>(+)<br>CHECK DISCHARGE<br>DON'T TOUCH<br>CR-CHDX14053<br>PCB ASSY<br>MOTOR |
| Correction | If the fan does not start, the below corrections may be effective.<br>(1) If there is a fan HIC failure or circuit failure, replace the PCB.<br>(2) If the fan motor is locked, replace the fan motor. |
| Example | — |
| Notes | Turn OFF the power, and check the continuity of "+" and "–" on the fan circuit PCB. |

**P26 Alarm**

| **Alarm code** | **P26** |
|---|---|
| Alarm meaning | Inverter compressor high-frequency overcurrent alarm |
| Alarm conditions | This alarm occurs when current trouble or current detection trouble occurs at an inverter frequency of 80 Hz or higher after start (when trouble judgment current is detected in the primary or secondary current, or when an instantaneous secondary current of 48 A or higher is detected). |
| Probable cause | The detection methods are the same as for P16. However the fact that operation up to high frequencies is possible does not necessarily mean that a compressor failure is the cause of the trouble. Start the compressor several times. If alarm P26 occurs every time and alarm P16 does not occur at all, then the possibility of a compressor failure is low. |
| Check | Check the power wiring and connector wiring. |
| Correction | It is possible to resolve this trouble by limiting the maximum frequency. |
| Example | — |
| Notes | — |

**P29 Alarm**

| **Alarm code** | **P29** |
|---|---|
| Alarm meaning | Inverter compressor missing phase or lock alarm |
| Alarm conditions | This alarm may occur at start, and occurs when missing phase or lock is detected, and when a DCCT failure occurs. |
| Probable cause | Generally this alarm occurs when the refrigerant pressure balance is uneven at start, or when inverter compressor lock occurs, there is a missing phase in the inverter compressor wiring, or a DCCT failure occurs. This can be judged to be starting trouble which is not caused by HIC. |
| Check | Check the power wiring and connector wiring. |
| Correction | DCCT failure (replace PCB) or compressor failure |
| Example | — |
| Notes | Use a tester to measure the voltage between the DCCT output terminal on the rear of the PCB and the ground. If the voltage is not within 2 – 3 V, then the DCCT has malfunctioned. |

## 4. Blinking ⚠ (Inspection) Display on the Remote Controller

⚠ **CAUTION** Currently the blinking inspection display can be displayed only on the wired remote controller and system remote controller.

**Blinking ⚠ inspection display (1) (Automatic backup)**

| **Alarm code** | **(Blinking ⚠ inspection display)** |
|---|---|
| Alarm meaning | Automatic backup is in progress. A/C units can be operated.<br>Status: The compressor at one of the outdoor units where the outdoor unit fan is running should be operating.<br>* Blinking inspection display also occurs when seizing of the compressor magnet SW is detected. Because this may also be the case, refer to “Blinking inspection display (2) (compressor magnet SW seizing detection).” |
| Alarm conditions | When alarm P16, P22, P26, P29, Hx1, Hx2, or H31 has occurred, correcting the control device (remote controller, etc.) input engages this mode. |
| Probable cause | Because alarm P16, P22, P26, P29, Hx1, Hx2, or H31 has occurred, check the alarm history then refer to the corresponding items. |
| Correction | Follow the instructions in the corresponding items to correct the trouble. |
| Recovery | After repairing the malfunctioning locations, reset the power for the system (all outdoor units).<br>Caution: Automatic backup mode will not be canceled until the power is reset. |
| Notes | Automatic backup mode is not engaged in cases of alarms other than those listed above.<br>Reasons: • There is no need for automatic backup if recovery is possible by correcting the remote controller input.<br>• With alarms for which automatic recovery is possible (such as sensor alarms), the presence of electrical noise may result in a new alarm. However, it is believed that this occurs for a comparatively short time only. In these cases, a mode (automatic backup mode) that limits operation may be engaged.<br>• Control is not possible when a communications system alarm has occurred.<br>• Automatic backup mode is not engaged in order to avoid causing secondary damage. |

## 4. Blinking ⚠ (Inspection) Display on the Remote Controller

### Blinking inspection display (2) (compressor magnet SW seizing detection)

| **Alarm code** | **(Blinking ⚠ inspection display)** |
|---|---|
| Alarm meaning | Compressor magnet SW seizing detected<br>Status: The compressor and outdoor unit fan motor continue to run even though all indoor units within that refrigerant tubing system are stopped.<br>☆ Because the fan is running only at the outdoor unit where seizing was detected, check the corresponding outdoor unit.<br>* The fan may also run on its own when fan cracking prevention control is in effect or when snowfall sensor input is present. Therefore monitor for approximately 10 minutes if the outdoor unit fans are operating at multiple units. |
| Alarm conditions | Current is detected in the CT circuit when the compressor is stopped.<br>(1) This control is not engaged for the first 30 seconds after the compressor turns ON →OFF.<br>(2) For 1 minute following the first 30 seconds after the compressor turned ON →OFF, the threshold for the detected current is 10 A or more continuing for 2 seconds.<br>(3) All times other than the above:<br>• If the low-pressure SW has not activated, the threshold for the detected current is 7 A or more continuing for 5 seconds.<br>• If the low-pressure switch has activated, the threshold for the detected current is 7 A or more continuing for 2 seconds. |
| Probable cause | (1) Magnet SW malfunction<br>• The magnet SW has seized, and the compressor is continuing to run.<br>→ Even when the power is turned OFF, the primary side and secondary side contacts remain together.<br>• The conditions of magnet SW operation are poor (difficult to open).<br>→ When a magnet SW is used in a DC circuit, it may be difficult for the SW to open at times. In an AC circuit the magnet SW should open instantaneously as long as the current is within the allowable range. However, this kind of trouble can occur if excessive current flows, and may prevent the SW from opening.<br>(2) CT circuit failure or PCB failure (A/D failure)<br>• CT circuit contact failure<br>→ Check that the connector is not partially disconnected.<br>Wiggle the connector to check the connection.*<br>* These symptoms will not occur if the connector is completely disconnected or the wire is cut. In these cases alarm Hx3 occurs.<br>• Current of 7A or higher was detected although the compressor was stopped, or a higher current was detected at occasional intervals.<br>• The compressor continues to operate at a time when the outdoor unit should be stopped (such as when all indoor units are stopped).<br>→ Check whether or not 208-230 V is output from the PCB to the magnet SW. If the voltage is output, there is a PCB failure.<br>(3) Installation error<br>• CT1 connector is connected to the compressor 2 side<br>• CT1 circuit is connected to the compressor 2 side<br>• CT2 connector is connected to the compressor 1 side<br>• CT2 circuit is connected to the compressor 1 side |
| Correction | (1) Replace the CT circuit.<br>(2) Replace the magnet SW.<br>(3) Replace the PCB.<br>If the above probable causes are not the cause of the alarm, it is possible that in rare cases the alarm may be caused by the effects of noise. See notes. |
| Notes | – |

# – MEMO –

# 4. PCB AND FUNCTIONS

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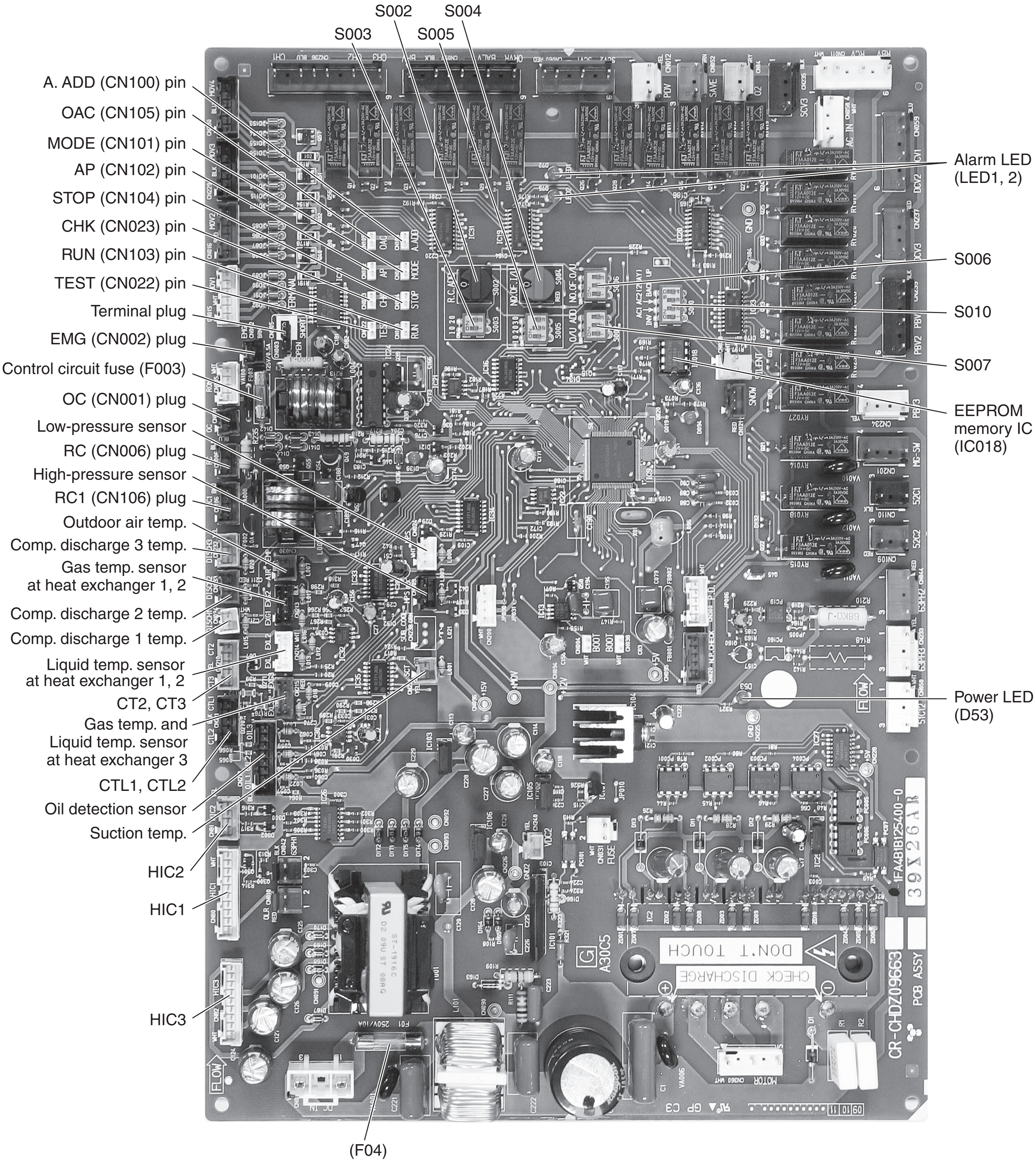
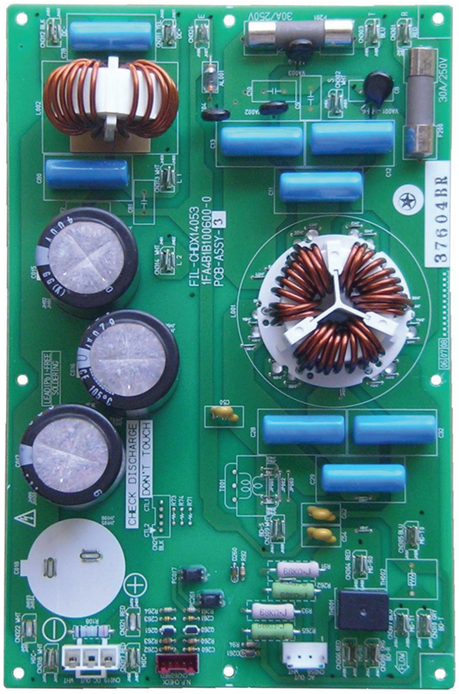
# 1. Outdoor Unit Control PCB

## 1-1. Outdoor Unit Control PCB CR-U-96MF1U9

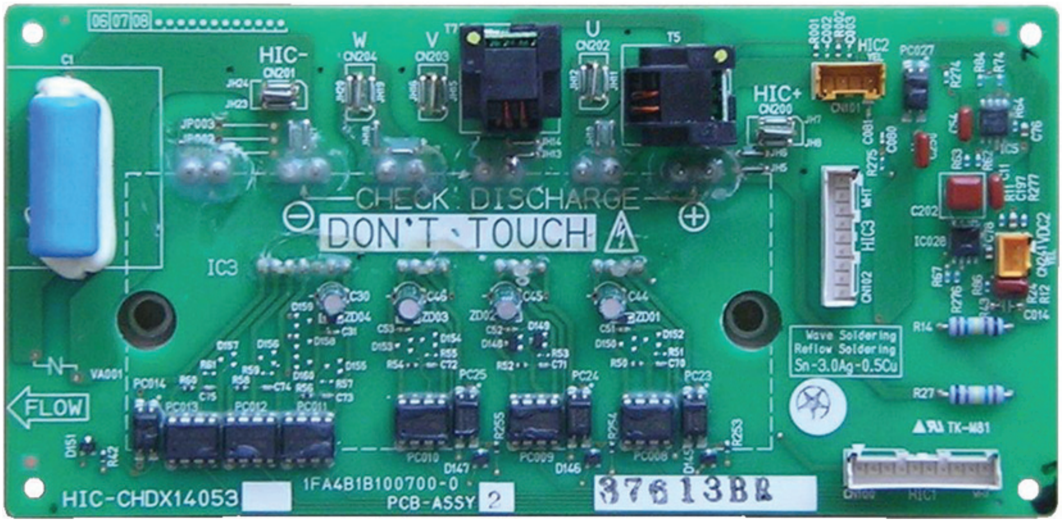

S002
S004
S003
S005
A. ADD (CN100) pin
OAC (CN105) pin
MODE (CN101) pin
AP (CN102) pin
STOP (CN104) pin
CHK (CN023) pin
RUN (CN103) pin
TEST (CN022) pin
Terminal plug
EMG (CN002) plug
Control circuit fuse (F003)
OC (CN001) plug
Low-pressure sensor
RC (CN006) plug
High-pressure sensor
RC1 (CN106) plug
Outdoor air temp.
Comp. discharge 3 temp.
Gas temp. sensor at heat exchanger 1, 2
Comp. discharge 2 temp.
Comp. discharge 1 temp.
Liquid temp. sensor at heat exchanger 1, 2
CT2, CT3
Gas temp. and Liquid temp. sensor at heat exchanger 3
CTL1, CTL2
Oil detection sensor
Suction temp.
HIC2
HIC1
HIC3
Alarm LED (LED1, 2)
S006
S010
S007
EEPROM memory IC (IC018)
Power LED (D53)
(F04)

# 1. Outdoor Unit Control PCB

## 1-2. Outdoor Unit Filter PCB FIL-CHDX14053


30A/250V
FIL-CHDX14053
1FA4B1B100600-0
PCB-ASSY 3
37604BR
CHECK DISCHARGE
DON'T TOUCH

## 1-3. Outdoor Unit HIC Board HIC-CHDX14053


HIC-
W
V
U
T5
HIC2
HIC+
CHECK DISCHARGE
DON'T TOUCH
IC3
HIC3
FLOW
Wave Soldering
Reflow Soldering
Sn-3.0Ag-0.5Cu
TK-M81
HIC-CHDX14053
1FA4B1B100700-0
PCB-ASSY 2
37613BR

# 1. Outdoor Unit Control PCB

## 1-4. Functions (for CR-U-96MF1U9)

| | |
|---|---|
| Automatic address setting (CN100) | 2P plug (white): Automatic address setting pin<br>• Short-circuit this pin for 1 second or longer to automatically set the addresses at the indoor units that are connected to that outdoor unit and are within the same system.<br>• The system address is "1" at the time of shipment. Automatic address setting is necessary even for communications lines in a single system where the inter-unit control wiring does not cross to any other systems.<br>• While automatic address setting is in progress, the 2 LEDs (LED1, 2: red) on the outdoor unit control PCB blink alternately. (Short-circuiting this pin while automatic address setting is in progress will stop the automatic address setting operation.) |
| S002 | Rotary switch (10 positions, black): Outdoor system address setting switch<br>• The setting is "1" at the time of shipment. It is not necessary to change the setting if wiring is connected only to an outdoor unit and indoor units in a single system and the inter-unit control wiring does not cross multiple systems.<br>• If wiring links the inter-unit control wiring for multiple systems to the same communications lines, then a different address must be set for each refrigerant tubing system.<br>• If wiring links multiple systems, a maximum of 30 systems (up to 64 indoor units) can be connected. This setting can be set up to "39," however control will be for 30 systems even if the setting is set to higher than 30. An alarm will be displayed if system addresses are duplicated. (For details, refer to Table 1.) |
| S003 | DIP switch (2P, blue): Switches for setting system address 10s digit and 20s digit<br>• If 10 systems or more are set, the setting is made by a combination of this DIP switch and S002.<br>• If 10 - 19 systems are set, set switch 1 (10s digit) to ON.<br>• If 20 - 29 systems are set, set switch 2 (20s digit) to ON, and set switch 1 (10s digit) to OFF.<br>• If 30 systems are set, set both switch 1 (10s digit) and switch 2 (20s digit) to ON. (For details concerning S002 and S003, refer to Table 1.) |
| S004 | Rotary switch (10 positions, red): Switch for setting the number of connected indoor units. In order to allow the outdoor unit to manage indoor units in the same refrigerant system, set the number of connected indoor units. (For details, refer to Table 2.) |
| S005 | DIP switch (3P, blue): Switches for setting the 10s, 20s, and 30s digit for the number of connected indoor units<br>• If 10 systems or more are set, the setting is made by a combination of this DIP switch and S004.<br>• If 10 - 19 systems are set, set only switch 1 (10s digit) to ON.<br>• If 20 - 29 systems are set, set switch 2 (20s digit) to ON, and set switch 1 (10s digit) to OFF.<br>• If 30 - 39 systems are set, set only switch 3 (30s digit) to ON. (For details concerning S004 and S005, refer to Table 2.) |
| S006 | DIP switch (3P, blue): Switch for setting the number of outdoor units<br>• Turn the switches ON according to the number of outdoor units (1 - 4). (For details, refer to Table 3.) |
| S007 | DIP switch (3P, blue): Unit No. setting switch<br>• The setting is "1" at the time of shipment. (For details, refer to Table 4.) |
| S010 | DIP switch (3P, blue): Backup operation switch<br>If an INV compressor has malfunctioned, turn CT1 ON and Back Up SW ON to operate the outdoor unit using only the constant-speed compressor.<br>If a constant-speed compressor has malfunctioned, turn CT2 ON and Back Up SW ON to operate the outdoor unit using only the INV compressor. (Disconnect the wiring from the constant-speed compressor.) |

# 1. Outdoor Unit Control PCB

| | |
|---|---|
| Terminal plug | 3P plug (black): For communications circuit impedance matching<br>• A connecting socket (3P, black) is attached to the terminal plug at the time of shipment from the factory.<br>• In the case of link wiring which combines the inter-unit control wiring for multiple systems into a single communications circuit, leave the connecting socket in place at only one of the outdoor units, and move the socket from the "SHORT" side to the "OPEN" side at all other outdoor units. If multiple connecting sockets are left in place, communications trouble will occur. |
| LED1, 2<br>D72, D75 | LED (red × 2)<br>• LED 1 and 2 blink alternately while automatic address setting is in progress.<br>• Display the alarm contents for alarms which were detected by the outdoor unit. |
| Power LED<br>D53 | LED (red): Power indicator<br>Indicates the DC 5V power on the outdoor unit control PCB. |
| Run<br>(CN103) | 2P plug (white): Start pin<br>Short-circuit this pin and apply a pulse signal to start all indoor units in that refrigerant system. |
| Stop<br>(CN104) | 2P plug (white): Stop pin<br>Short-circuit this pin and apply a pulse signal to stop all indoor units in that refrigerant system. |
| AP<br>(CN102) | 2P plug (white): Vacuuming pin<br>• To perform vacuuming of the outdoor unit, short-circuit this pin and then turn the power ON. All solenoid valves turn ON and vacuuming begins smoothly. (Do not perform automatic address setting at this time.)<br>• Release the short-circuit to return the unit to normal status. |
| Mode<br>(CN101) | 2P plug (white): Indoor unit Heating/Cooling mode change pin<br>• When operating the compressors to perform automatic address setting, operation in Heating mode can be normally used. However, short-circuiting this pin performs operation in Cooling mode. (Static signal)<br>• Short-circuiting this pin during ordinary operation changes the mode from Cooling to Heating (if the current mode is Cooling) or from Heating to Cooling (if the current mode is Heating). |
| Test<br>(CN022) | 2P plug (white)<br>• This pin is used to test the PCB at the factory.<br>• When the power is turned ON after this pin has been short-circuited, all output signals will be output in sequence. (Sequential output does not occur if this pin is short-circuited when the power is already ON.) Releasing this pin returns the unit to normal control. |

# 1. Outdoor Unit Control PCB

**Table 1. Setting the System Address [S002: Rotary switch (black), S003: 2P DIP (blue)]**

| | Outdoor system address | S002 setting | S003 setting | |
|---|---|---|---|---|
| | | | 1P (10s digit) | 2P (20s digit) |
| **1 refrigerant system only** | 1 | 0 | OFF | OFF |
| **Link wiring** | 1 | 1 | OFF | OFF |
| | 2 | 2 | OFF | OFF |
| | 3 | 3 | OFF | OFF |
| | 4 | 4 | OFF | OFF |
| | 5 | 5 | OFF | OFF |
| | 6 | 6 | OFF | OFF |
| | 7 | 7 | OFF | OFF |
| | 8 | 8 | OFF | OFF |
| | 9 | 9 | OFF | OFF |
| | 10 | 0 | ON | OFF |
| | 11 | 1 | ON | OFF |
| | 12 | 2 | ON | OFF |
| | 13 | 3 | ON | OFF |
| | 14 | 4 | ON | OFF |
| | 15 | 5 | ON | OFF |
| | 16 | 6 | ON | OFF |
| | 17 | 7 | ON | OFF |
| | 18 | 8 | ON | OFF |
| | 19 | 9 | ON | OFF |
| | 20 | 0 | OFF | ON |
| | 21 | 1 | OFF | ON |
| | 22 | 2 | OFF | ON |
| | 23 | 3 | OFF | ON |
| | 24 | 4 | OFF | ON |
| | 25 | 5 | OFF | ON |
| | 26 | 6 | OFF | ON |
| | 27 | 7 | OFF | ON |
| | 28 | 8 | OFF | ON |
| | 29 | 9 | OFF | ON |
| | 30 | 0 | ON | ON |

**Table 2. Setting the Number of Indoor Units [S004: Rotary switch (red), S005: 2P DIP (blue)]**

| Number of Indoor Units | S004 Setting | S005 Setting | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| 1 | 1 | OFF | OFF | OFF |
| 2 | 2 | OFF | OFF | OFF |
| 3 | 3 | OFF | OFF | OFF |
| | | | | |
| 9 | 9 | OFF | OFF | OFF |
| 10 | 0 | ON | OFF | OFF |
| 11 | 1 | ON | OFF | OFF |
| | | | | |
| 19 | 9 | ON | OFF | OFF |
| 20 | 0 | OFF | ON | OFF |
| 21 | 1 | OFF | ON | OFF |
| | | | | |
| 29 | 9 | OFF | ON | OFF |
| 30 | 0 | OFF | OFF | ON |
| 31 | 1 | OFF | OFF | ON |
| | | | | |
| 39 | 9 | OFF | OFF | ON |
| 40 | 0 | ON | ON | ON |

**Table 3. Setting the Number of Outdoor Units [S006: DIP switch (blue)]**

| Number of Outdoor Units | S006 Setting | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| 1 | ON | OFF | OFF |
| 2 | OFF | ON | OFF |

**Table 4. Setting the Outdoor Unit address**

| Outdoor Unit Address | S007 Setting | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| 1 | ON | OFF | OFF |
| 2 | OFF | ON | OFF |

## 2. Indoor Unit Control PCB

### Indoor Unit Control PCB Switches and Functions

### Indoor unit control PCB

**T10:** (CN61) **6P plug (yellow):** Used for remote control. (Refer to the remote control section.)
Control items: (1) Start/stop input (2) Remote controller prohibit input
(3) Start signal output (4) Alarm signal output

**EXCT:** (CN73) **2P plug (red):** Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.

**DISP:** (CN72) **2P plug (white):** Short-circuiting this plug allows the unit to be operated by the remote controller, even if it is not connected to an outdoor unit.
(In this case, alarm "E04," which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.)

**CHK:** **2P plug (white):** Test pin. Short-circuiting this pin allows the indoor FM (H fan speed), drain pump, flap motor (F1 position), and electronic expansion valve full-open position to be checked.
However this function turns OFF if the indoor unit protection mechanism is activated. The unit can be operated even if the remote controller and outdoor unit are not connected. However even if the remote controller cannot is connected, it cannot be used to operate the unit. This function can be used for short-term tests.

**JP1:** (J01) **Jumper wire:** Allows selection of the T10 terminal start/stop signal. (Refer to the remote control section.) Status at shipment: Pulse signal
Jumper wire cut: Static signal (continuous signal)

**FAN DRIVE 2P plug (white):** This terminal sends a signal to the ventilation fan when the FAN button on the wired remote controller is used to operate a commercially-available ventilation fan. (Refer to the remote control section.)
Use a ventilation fan which can accept no-voltage A contact as the external input signal.

**FILTER:** (CN70) **2P (white):** This terminal is used to connect contact input from the differential pressure switch which detects filter clogging. When the contacts turn ON, "FILTER" is displayed on the wired remote controller.

**Power LED: LED (red):** Illuminates when power is supplied. Blinks when there is a failure in the EEPROM (IC10: nonvolatile memory).

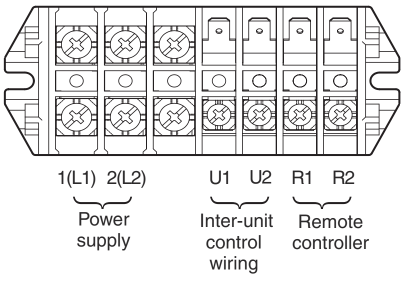
**EEPROM:** (IC10) **Nonvolatile memory:** Memory which stores the unit type data and other information. When the PCB is replaced, remove the EEPROM from the old PCB and install it onto the new PCB. If an IC failure occurs, replace with a new IC which was provided with the service PCB, and set the necessary information from the wired remote controller. (For the procedure, refer to the servicing technical materials.)

**GRL:** (CN20)
- For AC fan motor (CR-S-07MF1U6: 3P (yellow))
- For DC fan motor (CR-S-07MM1U6: 5P (blue))

- The indoor unit power terminal plate will be a 7P type or may be a 5P type. (Refer to the figure at below.) The basic wiring diagram shows the 7P-type terminal plate. Therefore the terminal plate may differ from the illustrations.

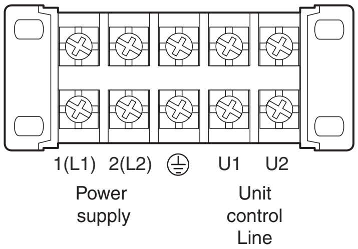
7P terminal board

**X, U, D Types (Except 6 series)**



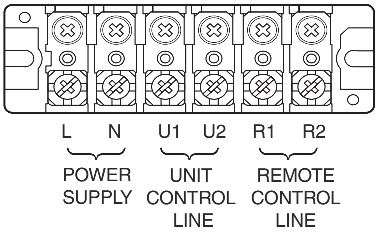
5P terminal board

**K Type**
**Model : S-07MK1U6**
**S-09MK1U6**
**S-12MK1U6**



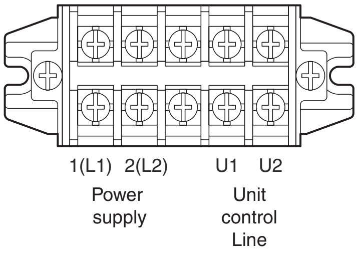
6P terminal board

**X, XM, A, U, UM, T, F, FM Types**



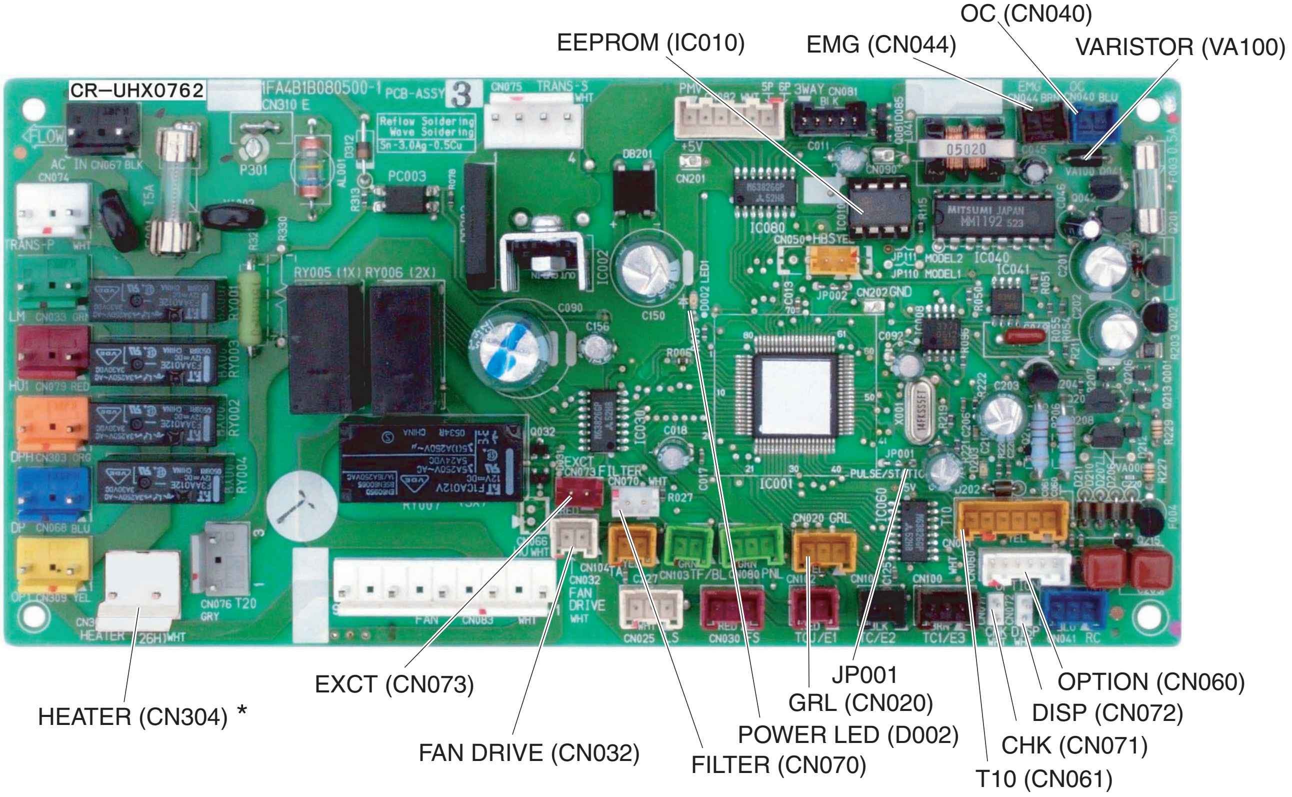
5P terminal board

**K Type**
**Model : S-18MK1U6**
**S-19MS1U6**
**S-24MK1U6**



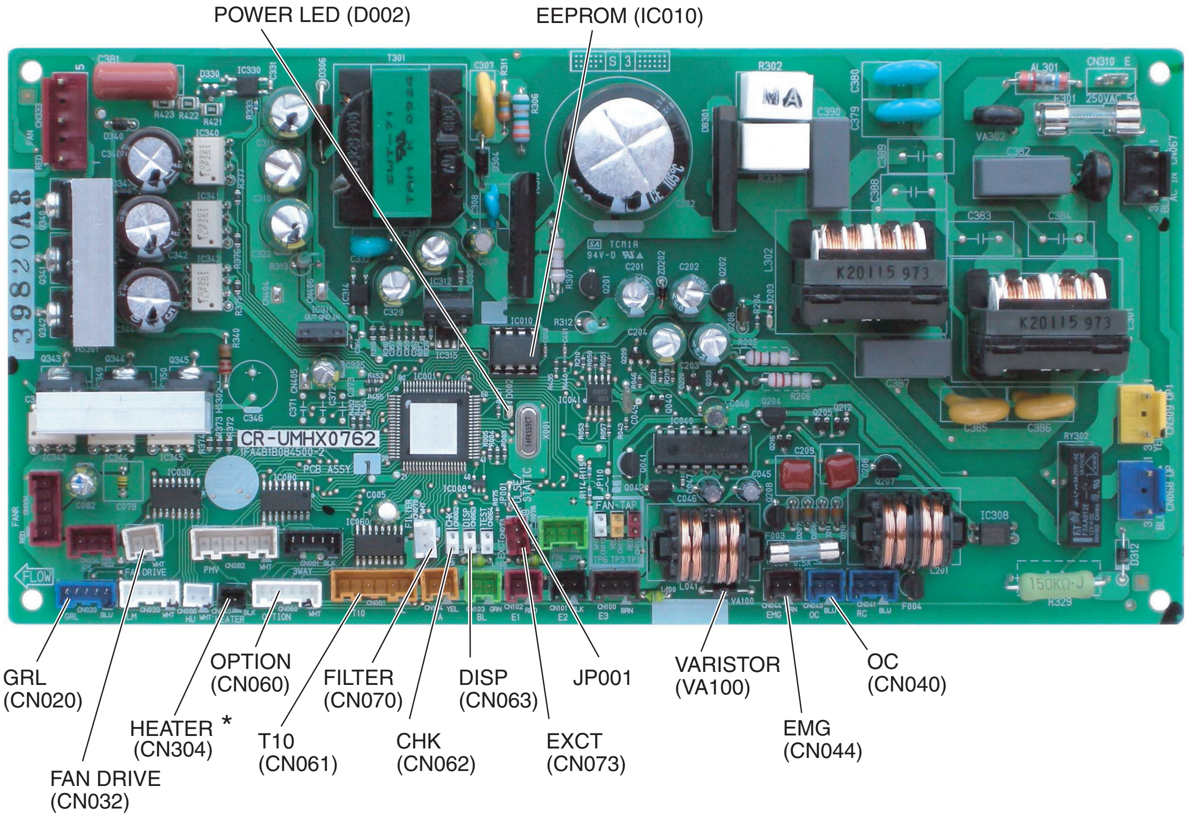
## 2. Indoor Unit Control PCB

### 2-1. AC Fan Motor (for CR-S-07MF1U6)


EEPROM (IC010)
EMG (CN044)
OC (CN040)
VARISTOR (VA100)
CR–UHX0762
HEATER (CN304) *
EXCT (CN073)
FAN DRIVE (CN032)
FILTER (CN070)
JP001
GRL (CN020)
POWER LED (D002)
T10 (CN061)
CHK (CN071)
DISP (CN072)
OPTION (CN060)

* Some models do not correspond to target products depending on the year of production.

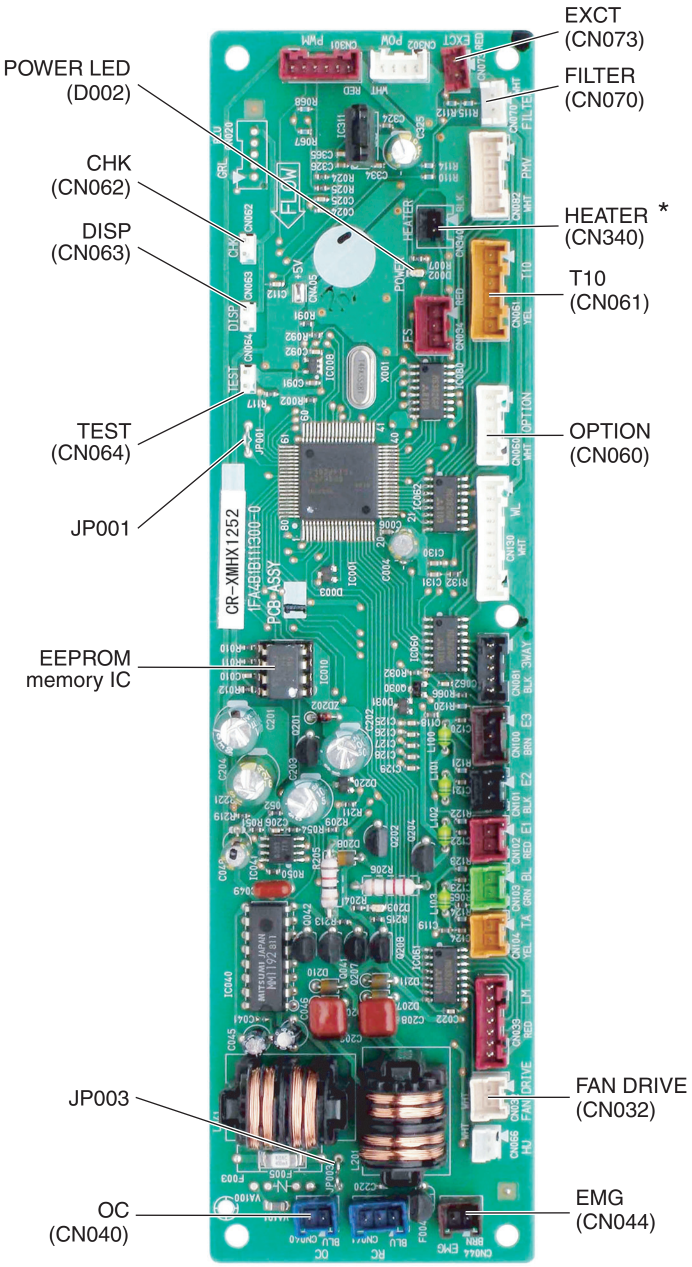
### 2-2. DC Fan Motor (for CR-S-07MM1U6)


POWER LED (D002)
EEPROM (IC010)
CR-UMHX0762
GRL (CN020)
FAN DRIVE (CN032)
HEATER * (CN304)
OPTION (CN060)
T10 (CN061)
FILTER (CN070)
CHK (CN062)
DISP (CN063)
EXCT (CN073)
JP001
VARISTOR (VA100)
EMG (CN044)
OC (CN040)

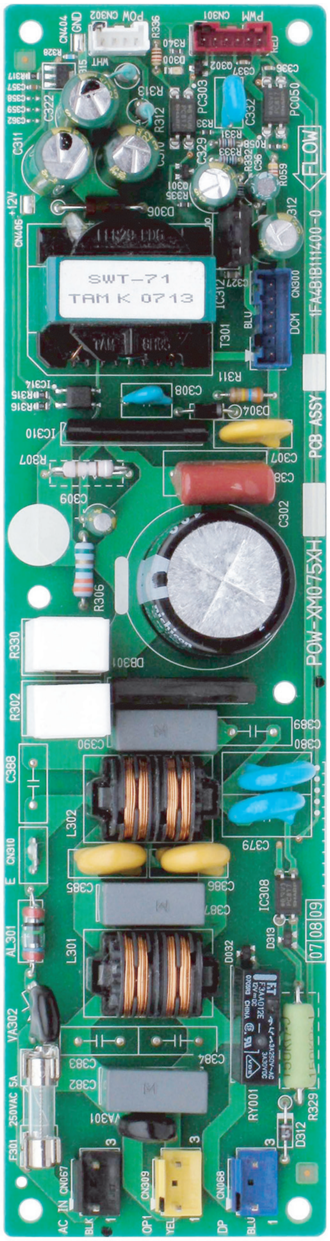
* Some models do not correspond to target products depending on the year of production.

## 2. Indoor Unit Control PCB

### 2-3. XM Type (for CR-S-12MY1U6, POW-XM075XH)


POWER LED
(D002)
CHK
(CN062)
DISP
(CN063)
TEST
(CN064)
JP001
EEPROM
memory IC
JP003
OC
(CN040)
EXCT
(CN073)
FILTER
(CN070)
HEATER *
(CN340)
T10
(CN061)
OPTION
(CN060)
FAN DRIVE
(CN032)
EMG
(CN044)

CR-XMHX1252



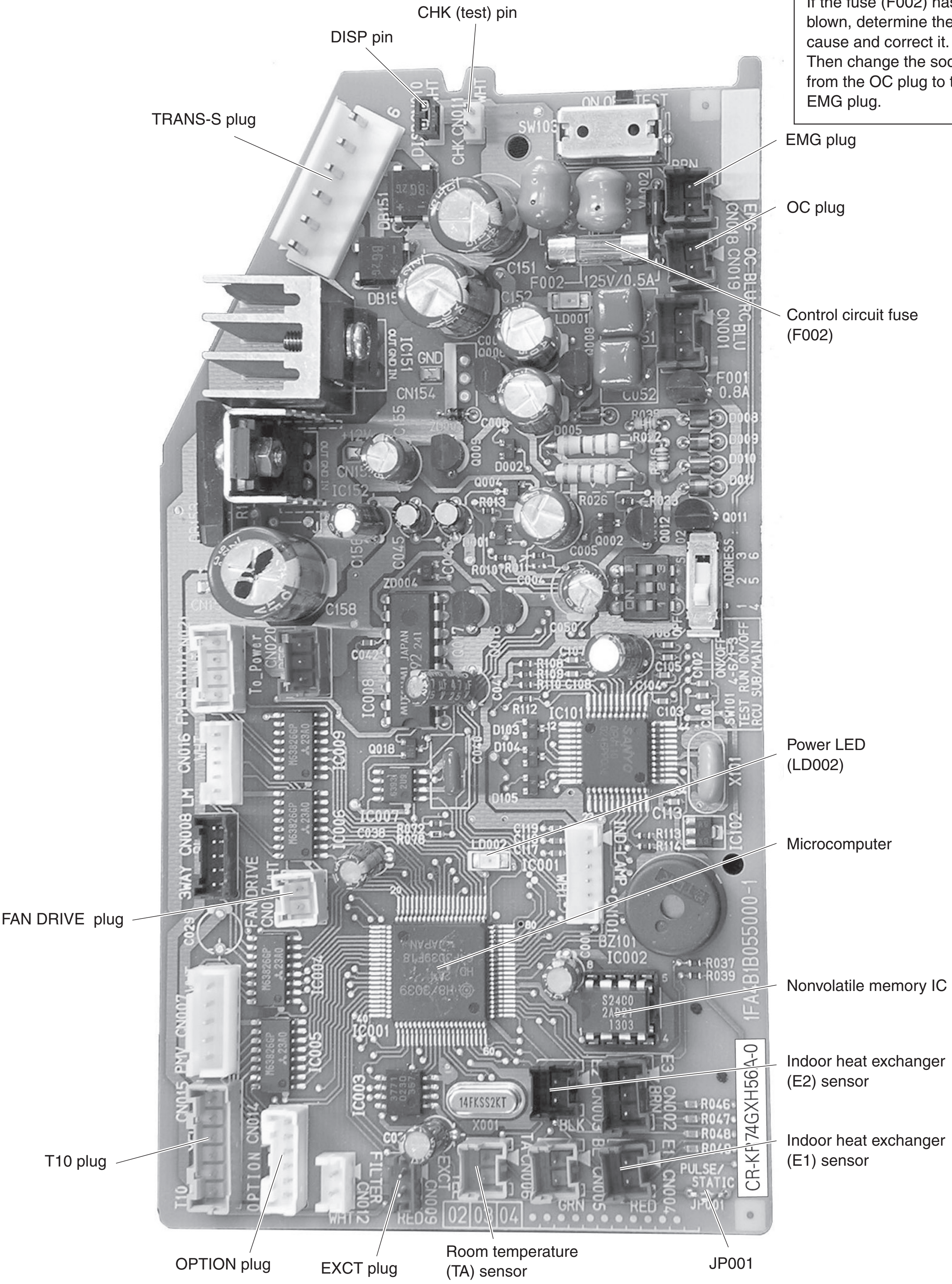
POW-XM075XH

* Some models do not correspond to target products depending on the year of production.

## 2. Indoor Unit Control PCB

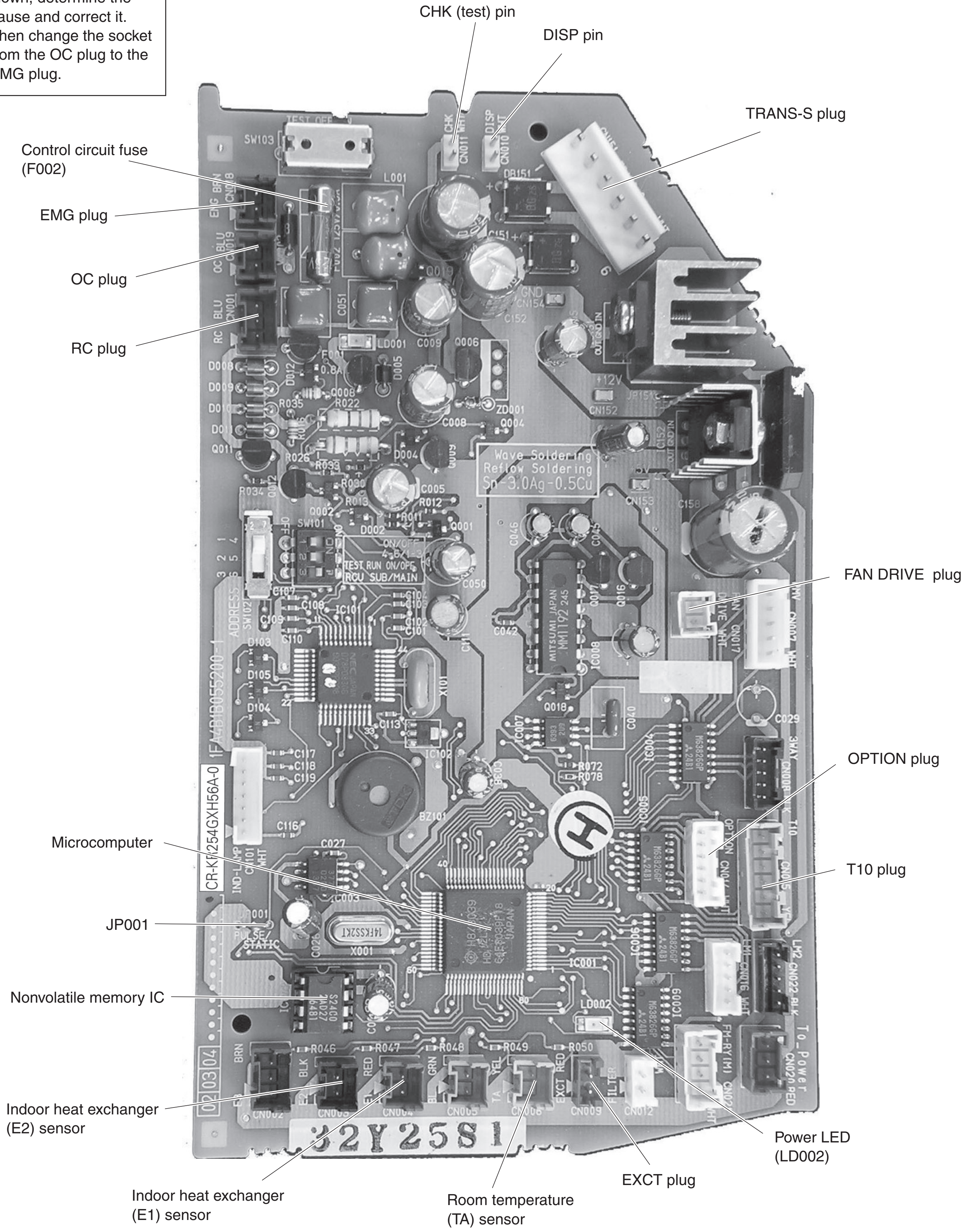
### 2-4. CR1 (for CR-KR74GXH56A/S-07MK1U6~S-12MK1U6) (Wall-Mounted)

If the fuse (F002) has blown, determine the cause and correct it. Then change the socket from the OC plug to the EMG plug.

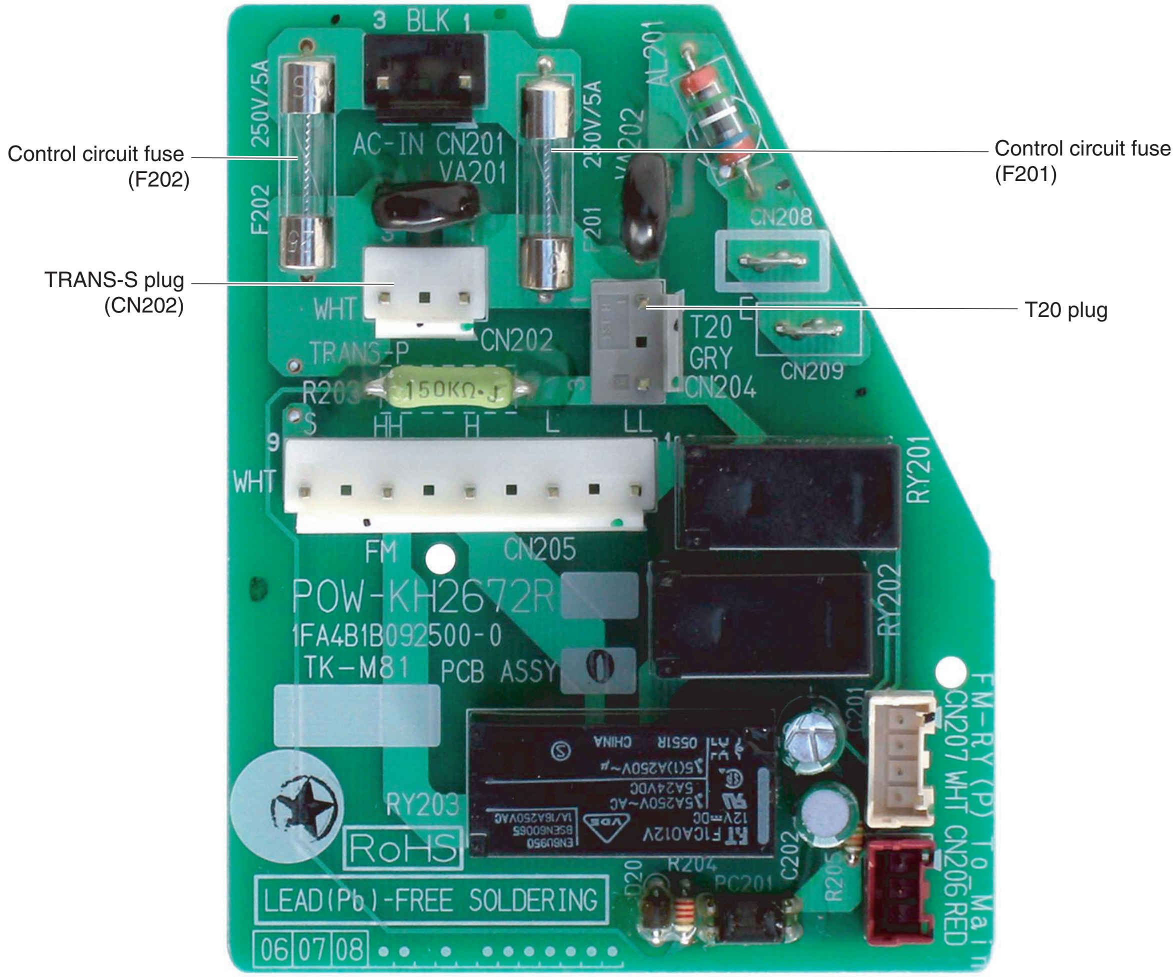

CHK (test) pin
DISP pin
TRANS-S plug
EMG plug
OC plug
Control circuit fuse (F002)
Power LED (LD002)
Microcomputer
FAN DRIVE plug
Nonvolatile memory IC
Indoor heat exchanger (E2) sensor
Indoor heat exchanger (E1) sensor
T10 plug
OPTION plug
EXCT plug
Room temperature (TA) sensor
JP001

## 2-5. CR1 (for CR-KR254GXH56A/S-18MK1U6~S-24MK1U6) (Wall-Mounted)

If the fuse (F002) has blown, determine the cause and correct it. Then change the socket from the OC plug to the EMG plug.


CHK (test) pin
DISP pin
TRANS-S plug
Control circuit fuse (F002)
EMG plug
OC plug
RC plug
FAN DRIVE plug
OPTION plug
T10 plug
Microcomputer
JP001
Nonvolatile memory IC
Indoor heat exchanger (E2) sensor
Indoor heat exchanger (E1) sensor
Room temperature (TA) sensor
EXCT plug
Power LED (LD002)

### 2-6. CR2 (for POW-KH2672R/S-07MK1U6~S-24MK1U6) (Wall-Mounted)


Control circuit fuse (F202)
TRANS-S plug (CN202)
Control circuit fuse (F201)
T20 plug

* Some models do not correspond to target products depending on the year of production.

# 2. Indoor Unit Control PCB

## 2-7. Explanation of Functions

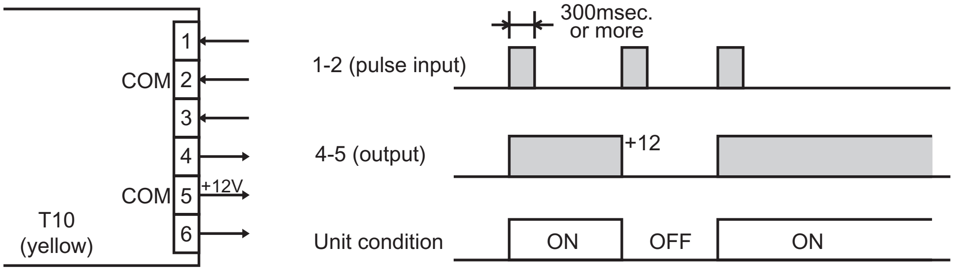
T10
(CN061)
(Remote control operation)

6P plug (yellow): Used for remote control.
Control items: ①Start/stop input ②Remote controller prohibit input
③Start signal output ④Alarm signal output

(Condition)
① **1-2** (Pulse input): Unit ON/OFF condition switching with a pulse signal.
(1 pulse signal: shortage status more than 300msec.or more)
② **2-3** (Static input): Open/ Operation with Remote is permitted.(Normal condition)
Close/ Remote controller is prohibited.
③ **4-5** (Static output): 12V output during the unit ON. / No output at OFF

④ **5-6**(Static output): 12V output when some errors occur / No output at normal

- Example of signal


300msec.
or more
1
COM 2
3
4
COM 5
+12V
6
T10
(yellow)
1-2 (pulse input)
4-5 (output)
+12
Unit condition
ON
OFF
ON

**NOTE**
The wire length from indoor unit to the Relay must be within 6.5ft.
Pulse signal changeable to static with JP cutting. (Refer to JP001)

---

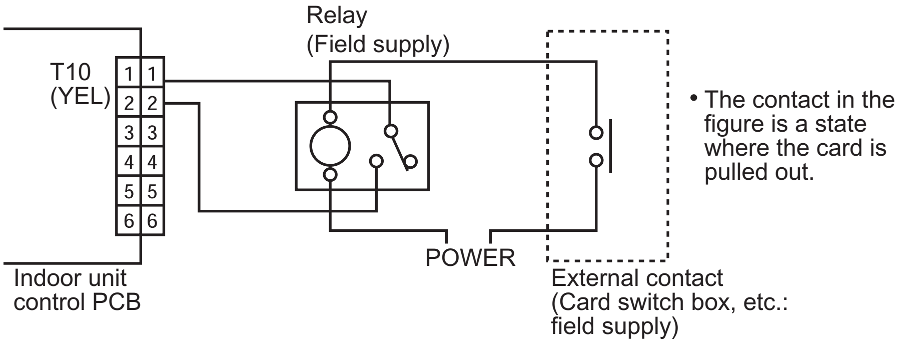
T10*
(CN061)
Forced OFF control

* Need to set EEPROM data at Code "2E" to **"0001"** (Refer to Page 2-35/ Detailed Setting Function)

- This is a method to control the indoor unit individually.

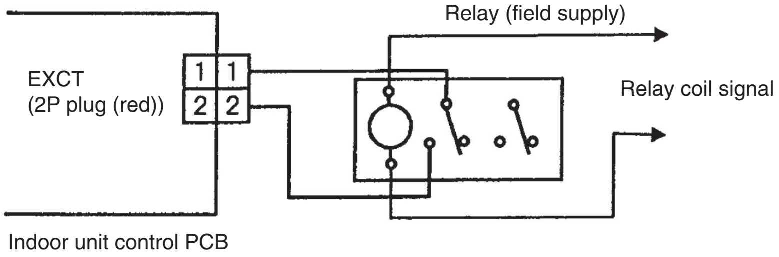
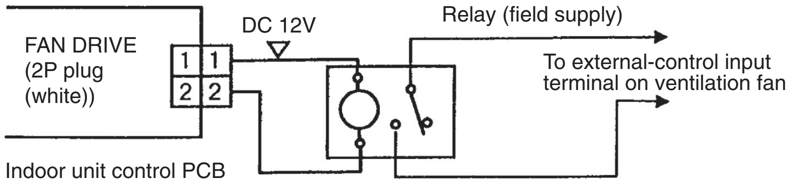
(Condition)
**1-2** (Static input): Close/ Operation with Remote is permitted. (Normal condition)
Open/ Unit is forcibly OFF and Remote controller operation is prohibited.

- Example of wiring

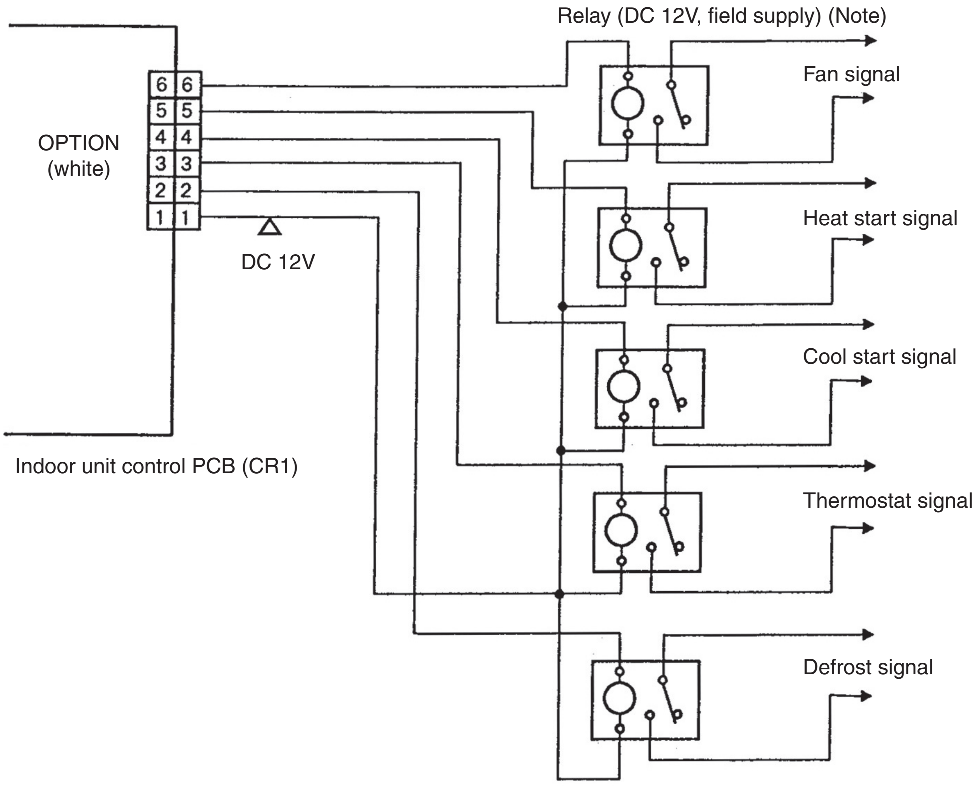

Relay
(Field supply)
T10
(YEL)
1 1
2 2
3 3
4 4
5 5
6 6
Indoor unit
control PCB
POWER
External contact
(Card switch box, etc.:
field supply)

• The contact in the figure is a state where the card is pulled out.

**NOTE**
The wire length from indoor unit to the Relay must be within 6.5ft.
Special-order parts: Wire K 623 176 6814

| | |
|---|---|
| EXCT<br>(CN009) | 2P plug (red): Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.<br>● Examples of wiring<br>* Lead wire with 2P plug (special-order part: WIRE K/623 174 4263)<br> Relay (field supply)<br>EXCT<br>(2P plug (red))<br>1 1<br>2 2<br>Relay coil signal<br>Indoor unit control PCB<br>**NOTE**<br>The length of the wiring from the indoor unit control PCB to the relay must be 6.5 ft. or less. |
| DISP<br>(CN010) | 2P plug (white): Short-circuiting this plug allows the unit to be operated by the remote controller, even if it is not connected to an outdoor unit. (In this case, alarm "E04," which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.) |
| CHK<br>(CN011) | 2P plug (white): Test pin. Short circuiting this plug allows the operation of the indoor fan motor (high) and flap motor (F1 position) to be checked. However this test operation stops if the indoor unit protection mechanism is activated. The unit can be operated even if the remote controller and outdoor unit are not connected. However even if the remote controller cannot be connected, it cannot be used to operate the unit. This function can be used for short-term tests. |
| JP001 | Jumper wire: Allows selection of the T10 terminal start/stop signal. Status at shipment: Pulse signal. Jumper wire cut: Static signal (continuous signal) |
| FAN DRIVE<br>(CN017) | 2P plug (white): This terminal sends a signal to the ventilation fan when the FAN button on the wired remote controller is used to operate a commercially-available ventilation fan. Use a ventilation fan that can accept no-voltage A contact as the external input signal.<br>● Examples of wiring<br>* Lead wire with 2P plug (special-order part: WIRE K/623 162 4435)<br> DC 12V<br>Relay (field supply)<br>FAN DRIVE<br>(2P plug<br>(white))<br>1 1<br>2 2<br>To external-control input terminal on ventilation fan<br>Indoor unit control PCB<br>**NOTE**<br>The length of the wiring from the indoor unit control PCB to the relay must be 2.5 ft. or less. |

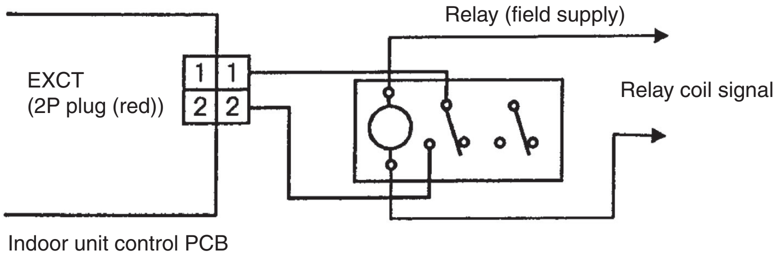
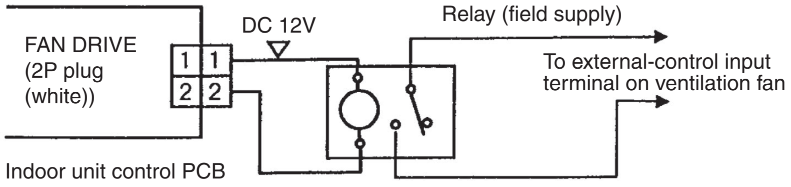
## 2. Indoor Unit Control PCB

<table>
<tr><td>OPTION<br>(CN014)</td><td>6P (white): Outputs external signals as shown in the figure below.<br>

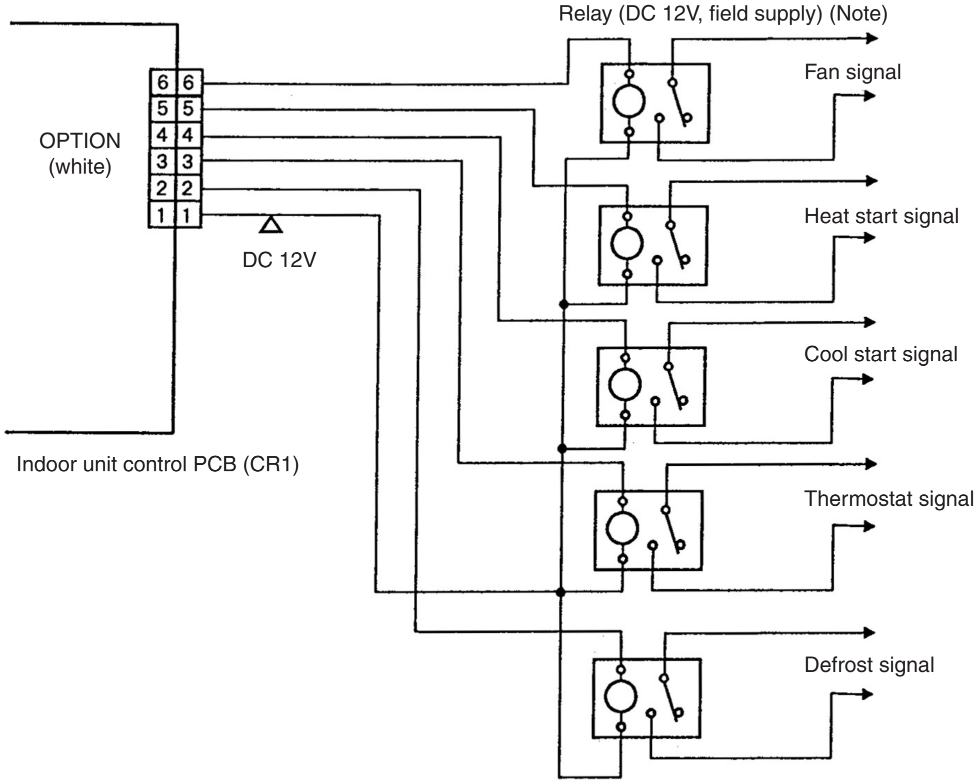
Relay (DC 12V, field supply) (Note)
Fan signal
Heat start signal
Cool start signal
Thermostat signal
Defrost signal
OPTION
(white)
6 6
5 5
4 4
3 3
2 2
1 1
DC 12V
Indoor unit control PCB (CR1)

<br>NOTE<br>The relay must be installed at a distance of 6.5 ft. or less from the PCB.</td></tr>
</table>

### 2-8. Explanation of Functions (CR-KXRP56AN, CR-KXRP80AN, POW-KRP50A)

| | |
|---|---|
| T10<br>(CN105)<br>(for remote control) | 6P flag (yellow): Used for remote control.<br>Control items: ① Start/stop input ② Remote controller prohibit input<br>③ Start signal output ④ Alarm signal output |
| EXCT<br>(CN009) | 2P plug (red): Can be used for demand control. When input is present, forces the unit to oparate with the thermostat OFF.<br>● Examples of wiring<br>* Lead wire with 2P plug (special-order part: WIRE K/623 174 4263)<br> Relay (field supply)<br>EXCT<br>(2P plug (red))<br>1 1<br>2 2<br>Relay coil signal<br>Indoor unit control PCB<br>Note: The length of the wiring from the indoor unit control PCB to the relay must be 6.6ft or less. |
| DISP<br>(CN010) | 2P plug (white): Short-circuiting this plug allows the unit to be operated by the remote controller, even if it is not connected to an outdoor unit. (In this case, alarm "E04," which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.) |
| CHK<br>(CN011) | 2P plug (white): Test pin. Short circuiting this plug allows the operation of the indoor fan motor (high) and flap motor (F1 position) to be checked.However this test operation stops if the indoor unit protection mechanism is activated. The unit can be operated even if the remote controller and outdoor unit are not connected. However if the remote controller is not connected, it cannot be used to operate the unit. This function can be used for short-term tests. |
| JP001 | Jumper wire: Allows selection of the T10 terminal start/stop signal. Status at shipment: Pulse signal Jumper wire cut: Static signal (continuous signal) |
| FAN DRIVE<br>(CN017) | 2P plug (white): This terminal sends a signal to the ventilation fan when the FAN button on the wired remote controller is used to operate a commercially-available ventilation fan.Use a ventilation fan that can accept no-voltage A contact as the external input signal.<br>● Examples of wiring<br>* Lead wire with 2P plug (special-order part: WIRE K/623 162 4435)<br> FAN DRIVE<br>(2P plug<br>(white))<br>1 1<br>2 2<br>DC 12V<br>Relay (field supply)<br>To external-control input<br>terminal on ventilation fan<br>Indoor unit control PCB<br>Note: The length of the wiring from the indoor unit control PCB to the relay must be 6.6ft or less. |

## 2. Indoor Unit Control PCB

| | |
|---|---|
| OPTION<br>(CN014) | 6P (white): Outputs external signals as shown in the figure below.<br><br> Relay (DC 12V, field supply) (Note)<br>6 6<br>5 5<br>4 4<br>3 3<br>2 2<br>1 1<br>OPTION (white)<br>DC 12V<br>Indoor unit control PCB (CR1)<br>Fan signal<br>Heat start signal<br>Cool start signal<br>Thermostat signal<br>Defrost signal<br>Note: The relay must be installed at a distance of 6.6ft or less from the PCB. |

### 2-9. Instructions for Connecting External Heater to VRF Indoor Units

By using the heater-driving signal of the indoor unit Control PCB, the external heater can be controlled as a united heating system with the indoor unit. Also, by changing the EEPROM setting of the indoor unit, the external heater can be operated, even when there is an alarm occurred on the system.

**CAUTION**

(1) Make sure to install protective devices like thermal fuse, thermal switch or current fuse with the heater. The PCB of the indoor unit just output operation signal, and does not recognize, whether there is danger or not on the heater side.

**We can not take responsibility on the damage occurred on the heater side.**

(2) Be sure to follow the Electrical Wiring Instruction as shown below and the Local Code. A heater can potentially cause serious damage or fire. Please be careful to wire it with a best manner.

(3) Be sure to provide an independent power supply for the external heater, which is separate from the power supply for the indoor unit.

(4) If there is a failure of the indoor unit Control PCB or indoor unit fan motor, the indoor unit stops outputting heater signal.

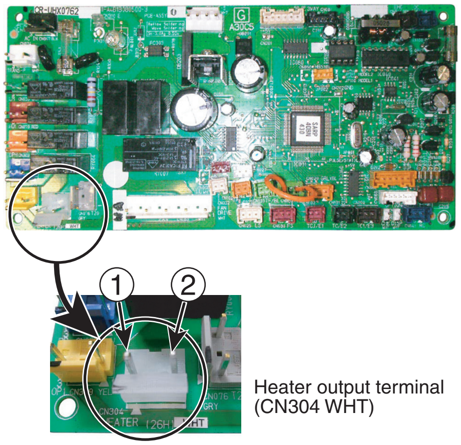
(5) When Wring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

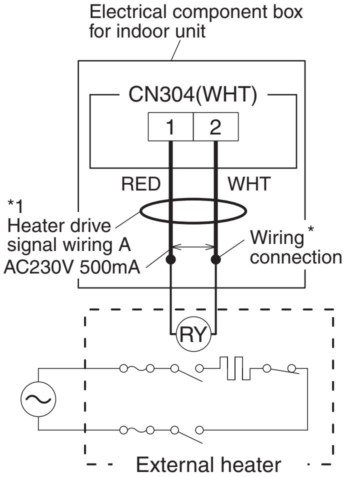
- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.

#### ● How to connect external heater

**Model :** S-**MF, S-**ME, S-**MP, S-**MR



Heater output terminal (CN304 WHT)


Electrical component box for indoor unit
CN304(WHT)
1
2
RED
WHT
*1
Heater drive signal wiring A
AC230V 500mA
Wiring *
connection
RY
External heater

(1) The output signal is 230V AC.

(2) When installing the heater, be sure to turn OFF the power to the indoor unit.

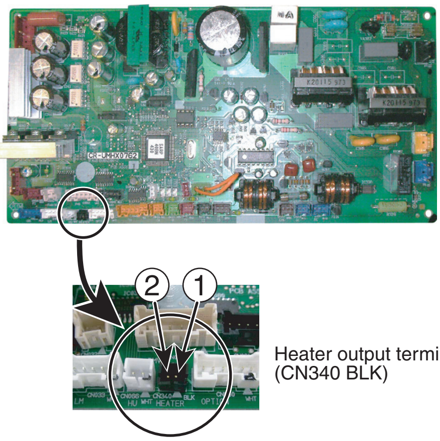
(3) If it is wired to the connectors other than the heater output terminal, by mistake, the heater signal can not be output correctly.

(4) The connector for this output is separately sold by the following part code: 623 312 1390

* Make connection inside the electrical component box.

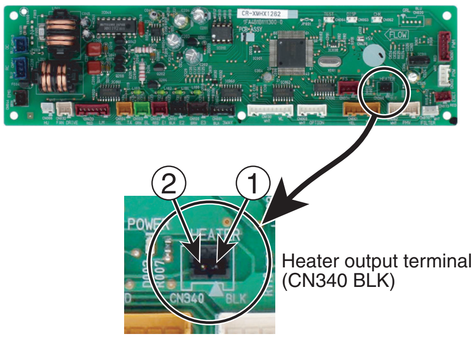
*1 Wiring inside the electrical component box of the indoor unit should be carried out referring to the wiring diagram of each model. Since it is necessary to wire to the high-voltage electrode, separate from the low-voltage.

**Model :** S-**MU, S-**MY, S-**MD, S-**MT, S-**MM

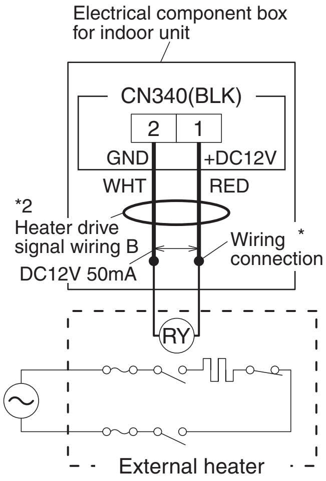


Heater output terminal (CN340 BLK)

Only for S-**MY



Heater output terminal (CN340 BLK)


Electrical component box for indoor unit
CN340(BLK)
2
1
GND
+DC12V
WHT
RED
*2
Heater drive signal wiring B
DC12V 50mA
Wiring *
connection
RY
External heater

Continued

(1) The output signal is 12V DC. ("1" is "+" and "2" is "-".)

(2) **A mistake in polarity while connecting might cause damage to both heater side and the PCB of the indoor unit.**

(3) When installing the heater, be sure to turn OFF the power to the indoor unit.

(4) If it is wired to the HU connector, adjacent to the heater output terminal, by mistake, the heater signal can not be output correctly.

(5) The connector for this output is separately sold by the following part code: 623 312 1390

* Make connection inside the electrical component box.

*2 Wiring inside the electrical component box of the indoor unit should be carried out referring to the wiring diagram of each model. Since it is necessary to wire to the low-voltage electrode, separate from the high-voltage.

### ● Functions & Settings of External Heater Signal Output

**Setting at factory shipment:**

- The external heater functions as a supplementary heater in the heating mode. The heater stops at the occurrence of alarm in the system.

**When the indoor EEPROM setting is set as emergency heater:**

- The external heater functions as a supplementary heater in the heating mode, and it can continue working, even when there is an alarm in the system, except the type of the alarm is the following.
  P01 or P12 (Failure in the indoor unit fan)
  F10 (Failure of return air sensor)

⚠ **CAUTION**

- In the case of EEPROM setting to the code 02 from the code 38, take caution as the indoor fan drives during the alarm mode (regardless of the driving mode excepting P01, P12).

**EEPROM setting for work as emergency heater:**

- If the item code "38" of the indoor EEPROM is changed from "0000" to "0002", the heater functions as emergency heater, and keep on working, even when the system is in alarm. See the below how to select and change item code 38, using remote controller, CZ-RTC2.

**<Procedure of Indoor EEPROM Setting Changes>**

① Press and hold the 🔧 , SET and CANCEL buttons simultaneously for 4 seconds or longer.

② SETTING , unit No. 1-1 (or ALL in the case of group control), item code 10 , and settings data 00XX are displayed blinking on the remote controller LCD display. At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

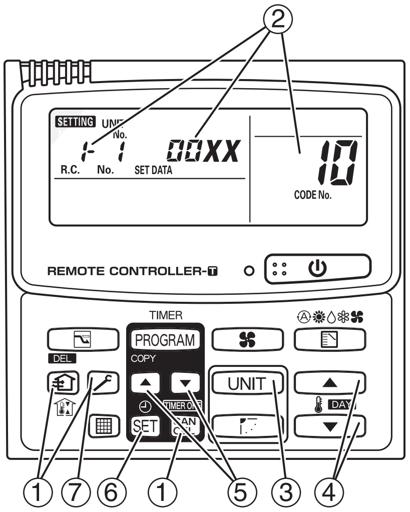
③ If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

④ Press the temperature setting ▲ / ▼ buttons to select the item code to change.

⑤ Press the timer time ▲ / ▼ buttons to select the desired setting data.
* For item codes and setting data, refer to the following page.

⑥ Press the SET button.
(The display stops blinking and remains lit, and the setting is completed.)

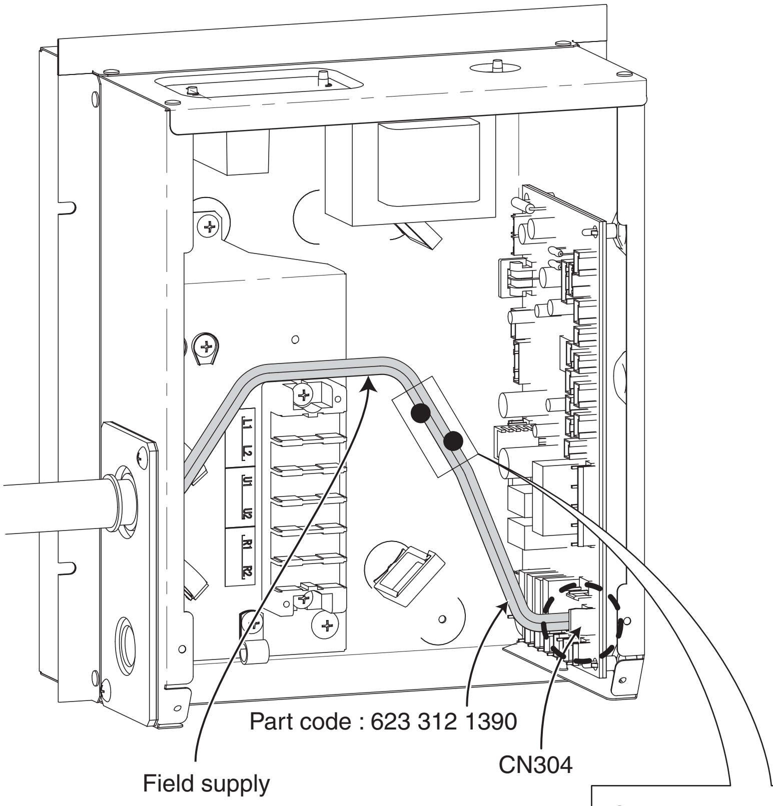
⑦ Press the 🔧 button to return to normal remote controller display.



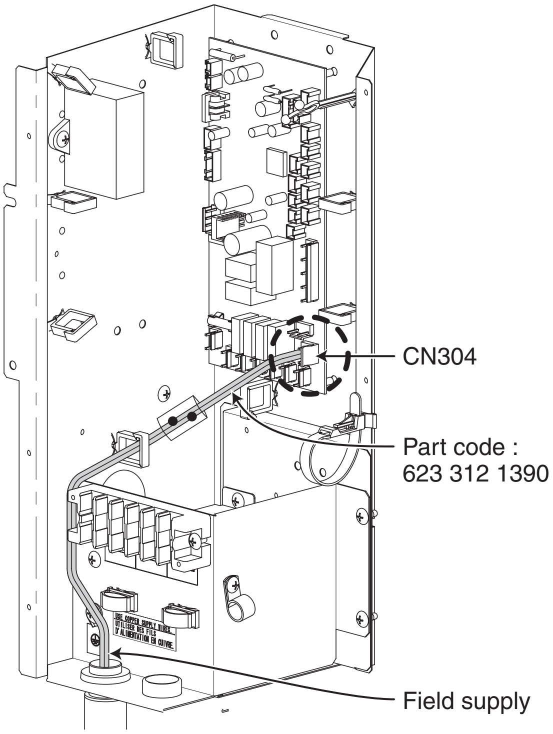
## 2. Indoor Unit Control PCB

- The following charts show the drawings of the wiring layout of the heater output signal.
- Install the connector for the output (part code: 623 312 1390) to the location marked with CN304 or CN340.
- Install the wiring connection into the electrical component box.
  Also, be sure to insulate the connection terminal.
- Concerning the model of S-**MF, S-**MP, S-**MR S-**ME, assort with the side of the high voltage wire.
- Concerning the model of S-**MU, S-**MY, S-**MD S-**MT, S-**MM, assort with the side of the low voltage wire.

**Model :** S-**MF


Part code : 623 312 1390
CN304
Field supply

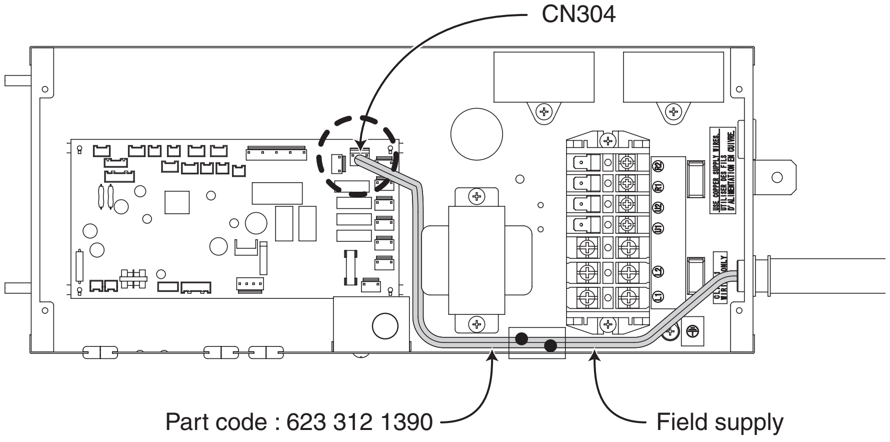
**Model :** S-**MP, S-*MR


CN304
Part code :
623 312 1390
Field supply

**Connecting part in the local fields**

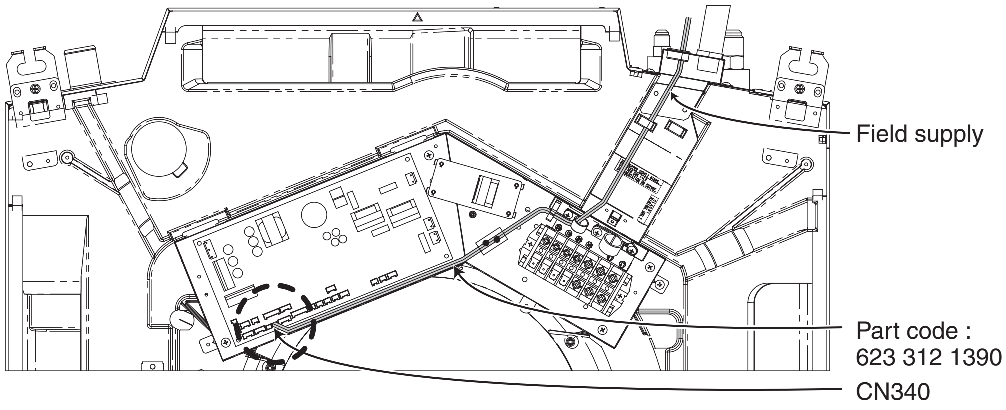
- For safety, keep one position away from another.
- Be sure to insulate without fail.
- Applicable to all models

**Model :** S-**ME

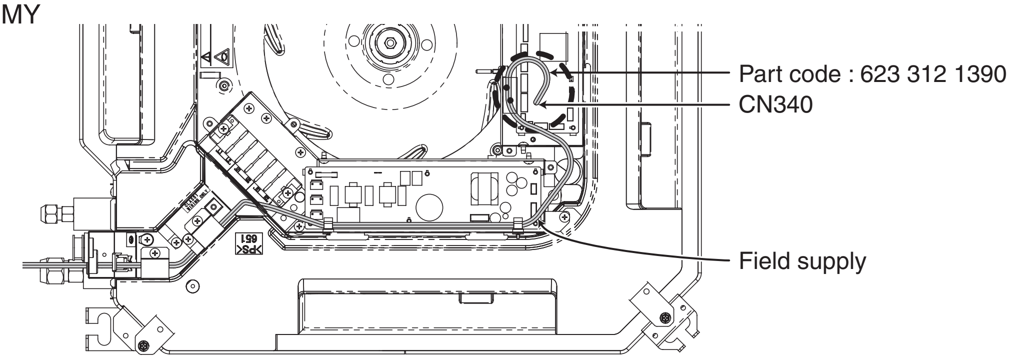

CN304
Part code : 623 312 1390
Field supply

## 2. Indoor Unit Control PCB

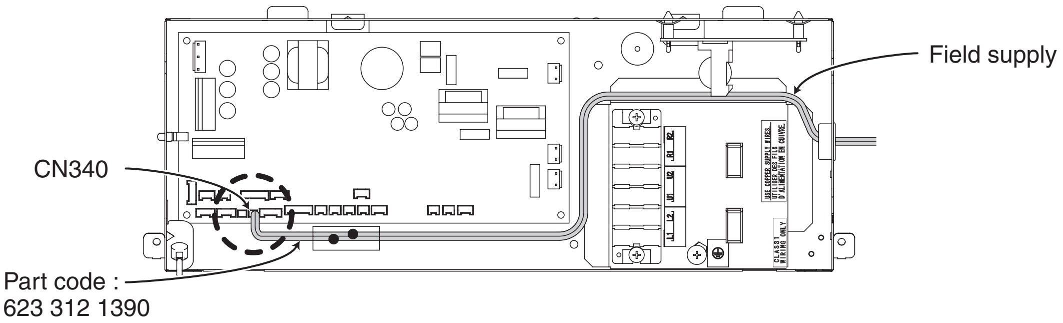
**Model :** S-**MU


Field supply
Part code :
623 312 1390
CN340

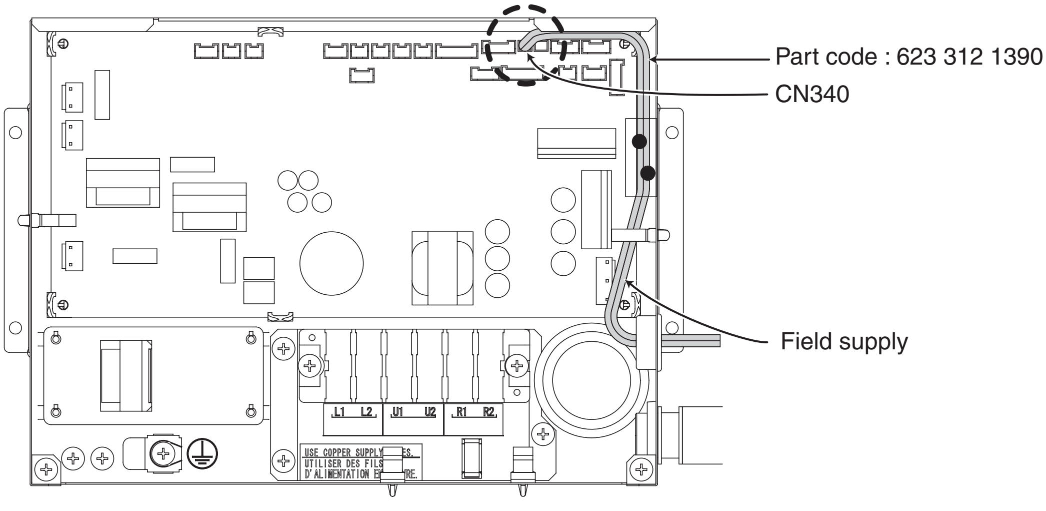
**Model :** S-**MY


Part code : 623 312 1390
CN340
Field supply

**Model :** S-**MD, S-**MT


Field supply
CN340
Part code :
623 312 1390
L1
L2
U1
U2
R1
R2
USE COPPER SUPPLY WIRES.
UTILISER DES FILS
D'ALIMENTATION EN CUIVRE.
CLASS 1
WIRING ONLY

**Model :** S-**MM


Part code : 623 312 1390
CN340
Field supply
L1
L2
U1
U2
R1
R2
USE COPPER SUPPLY
UTILISER DES FILS
D'ALIMENTATION

# – MEMO –

# 5. SELF-DIAGNOSIS FUNCTION TABLE

1. Self-Diagnosis Function Table ........................................................................................5-2

# 1. Self-Diagnosis Function Table

## 1. Self-Diagnosis Function Table

- Causes and corrections in instances when automatic address setting cannot be started

| Trouble | Cause and correction |
|---|---|
| The power LED (D53) on the outdoor unit control PCB does not turn ON. | Check for any errors in the power wiring to the outdoor unit, and check for a missing phase. |
| LED 1 and 2 on the outdoor unit control PCB do not turn OFF when the outdoor unit power is turned ON, and automatic address setting cannot be started. | Check the “Alarm Display” table and correct the problem.<br>(Refer to Section 3 Trouble Diagnosis) |
| An alarm appears immediately when automatic address setting is started from the wired remote controller. | |
| Nothing happens when the operator attempts to start automatic address setting from the wired remote controller. | Check that the wired remote controller wiring and the inter-unit control wiring are connected correctly.<br>Check that the indoor unit power is ON. |

- Causes and corrections in instances when automatic address setting starts, but cannot be completed successfully

| Trouble | Cause and correction |
|---|---|
| An alarm appears on the wired remote controller sometime from several seconds to several minutes after automatic address setting is started. | Check the “Alarm Display” table and correct the problem.<br>(Refer to Section 3 Trouble Diagnosis.)<br>Check the alarm details on the “Outdoor Unit Control PCB LED 1 and 2 Alarms” , then correct the problem. |
| LED 1 and 2 on the outdoor unit control PCB indicate that automatic address setting is in progress (the LEDs blink alternately) for several minutes after automatic address setting is started (the compressors may also start and stop several times), however LED 1 and 2 never indicate that automatic address setting is completed (turn OFF). | |

- If alarm E15, E16, or E20 appears after automatic address setting is started, check the following items.

| Alarm display | Alarm description |
|---|---|
| E15 | The number of indoor units detected during automatic address setting was smaller than the number of indoor units which was set with switch S004 and S005 on the outdoor unit PCB. |
| E16 | The number of indoor units detected during automatic address setting was larger than the number of indoor units which was set with switch S004 and S005 on the outdoor unit PCB. |
| E20 | The outdoor unit received no serial signals from indoor units within 90 seconds after automatic address setting was started. |

# 1. Self-Diagnosis Function Table

| Check items | E15 | E16 | E20 |
|---|---|---|---|
| Check that the indoor unit power is turned ON. | ○ |  | ○ |
| Check that the inter-unit control wiring is connected correctly. (Check that there are no open circuits, short circuits, terminal plugs, incorrect wiring to the remote controller terminals, or similar problems.) | ○ | ○ | ○ |
| Check that the remote controller wiring is connected correctly. (Check that there are no open circuits, short circuits, incorrect wiring to the inter-unit control wiring terminals, group control crossover wiring, or similar problems.) | ○ |  | ○ |
| Check that the number of indoor units has been set correctly using switch S004 and S005 on the outdoor unit control PCB. | ○ | ○ |  |
| Check that the amount of additional refrigerant charge is correct when performing Auto Address Setting Case 3A or Case 3B in the flow chart described on page 1-3. | ○ |  |  |
| Check that the refrigerant tubing connections are correct when performing Auto Address Setting Case 3A or Case 3B in the flow chart described on page 1-3. | ○ | ○ |  |
| Check that there are no problems with indoor unit sensors E1 and E3 when performing Auto Address Setting Case 3A or Case 3B in the flow chart described on page 1-3. | ○ |  |  |
| Check that there are no indoor units where the system address was already incorrectly set by manual or automatic address setting. |  | ○ |  |

- When automatic address setting is started from the outdoor unit control PCB or from the remote controller, SETTING (SETTING) appears on the remote controller at units where the inter-unit control wiring and remote controller wiring are connected correctly. LED 1 and 2 on the outdoor unit control PCB blink alternately.

- In the case of indoor unit group control, if there is a mistake in the group-control wiring, addresses may not be set even if SETTING (SETTING) appears.

- Even if alarm E15 or E16 appears, addresses are set at those indoor units which could be verified. The set addresses can be checked using the wired remote controller.

- If one of the below alarms appears when the remote controller is operated after automatic address setting was completed (LED 1 and 2 on the outdoor unit control PCB are turned OFF), follow the instructions in the table below and correct the problem location.

| Remote controller display | Cause |
|---|---|
| Nothing is displayed. | The remote controller is not connected correctly (power trouble).<br>The indoor unit power was cut off after automatic address setting was completed. |
| E01 | The remote controller is not connected correctly (remote controller receiving trouble).<br>The remote controller of an indoor unit where the indoor unit address is not set is inadvertently operated. (Communications with the outdoor unit are not possible.) |
| E02 | The remote controller is not connected correctly (trouble with sending of the signal from the remote controller to the indoor unit). |
| P09 | The indoor unit ceiling panel connector is not connected correctly. |

# 1. Self-Diagnosis Function Table

- The outdoor unit maintenance remote controller can be used to check the alarm display.
  The number of times that LED 1 and 2 blink on the outdoor unit control PCB can be used to check the alarm display.
  (Refer to “Checking the LED 1 and 2 Alarm Display on the Outdoor Unit Control PCB.”)

| Alarm code | Alarm meaning |
|---|---|
| E06 | Outdoor unit failed to receive serial communication signals from indoor unit. |
| E12 | Automatic address setting start is prohibited. |
| E15 | Automatic address setting alarm (too few units) |
| E16 | Automatic address setting alarm (too many units) |
| E20 | No indoor units at automatic address setting. |
| E24 | Outdoor unit failed to receive communications from another outdoor unit. |
| E25 | Outdoor unit address setting failure (duplication) |
| E26 | Mismatch in outdoor unit quantity |
| E29 | Outdoor unit failed to receive communication from another outdoor unit. |
| F04 | Compressor 1 discharge temperature sensor trouble (DISCH1) |
| F05 | Compressor 2 discharge temperature sensor trouble (DISCH2) |
| F06 | Gas temperature sensor trouble at outdoor heat exchanger 1 (EXG1) |
| F07 | Liquid temperature sensor trouble at outdoor heat exchanger 1 (EXL1) |
| F08 | Outdoor air temperature sensor trouble (AIR TEMP) |
| F12 | Compressor intake temperature sensor trouble (SCT) |
| F16 | High-pressure sensor trouble (HPS) |
| F17 | Low-pressure sensor trouble (LPS) |
| F23 | Gas temperature sensor trouble at outdoor heat exchanger 2 (EXG2) |
| F24 | Liquid temperature sensor trouble at outdoor heat exchanger 2 (EXL2) |
| F31 | Outdoor unit non-volatile memory (EEPROM) trouble |
| H03 | Compressor 1 CT sensor disconnected or short-circuit |
| H06 | Low-pressure trouble |
| H08 | Compressor 1 oil detection sensor (connection) trouble |
| H11 | Constant speed compressor 2 overcurrent alarm |
| H12 | Constant speed compressor 2 lock current alarm |
| H13 | Compressor 2 CT sensor disconnected or short-circuit |
| H15 | Compressor 2 discharge temperature sensor disconnected |
| H27 | Compressor 2 lock current alarm |
| H31 | HIC trouble alarm |
| L04 | Outdoor unit address duplication |
| L10 | Outdoor unit capacity not set |
| L17 | Outdoor unit model mismatch |
| P03 | Compressor 1 discharge temperature trouble |
| P04 | High-pressure switch activated |
| P05 | Reverse phase (or missing phase) detected, capacity mismatch |
| P14 | $O_2$ sensor is activated. |
| P16 | Compressor 1 overcurrent |
| P17 | Compressor 2 discharge temp trouble |
| P22 | Fan motor trouble |
| P26 | Inverter compressor high-frequency overcurrent alarm |
| P29 | Inverter compressor missing phase or lock alarm |

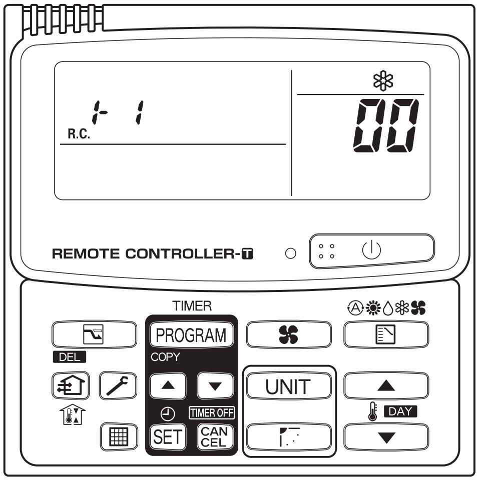
# 6. SERVICE CHECKER

**1. Outdoor Unit Maintenance Remote Controller ........................................................6-2**
  1-1. Over View ........................................................................................6-2
  1-2. Functions.........................................................................................6-2
  1-3. Ordinary Display Controls and Functions.......................................6-3
  1-4. Monitoring Operations......................................................................6-7
  1-5. Outdoor Unit Alarm History Monitor .................................................6-8
  1-6. Setting the Outdoor Unit EEPROM Data..........................................6-9

# 1. Outdoor Unit Maintenance Remote Controller

## 1-1. Overview

### ■ About the outdoor unit maintenance remote controller


R.C.
1- 1
00
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
TIMER OFF
SET
CAN CEL
DAY

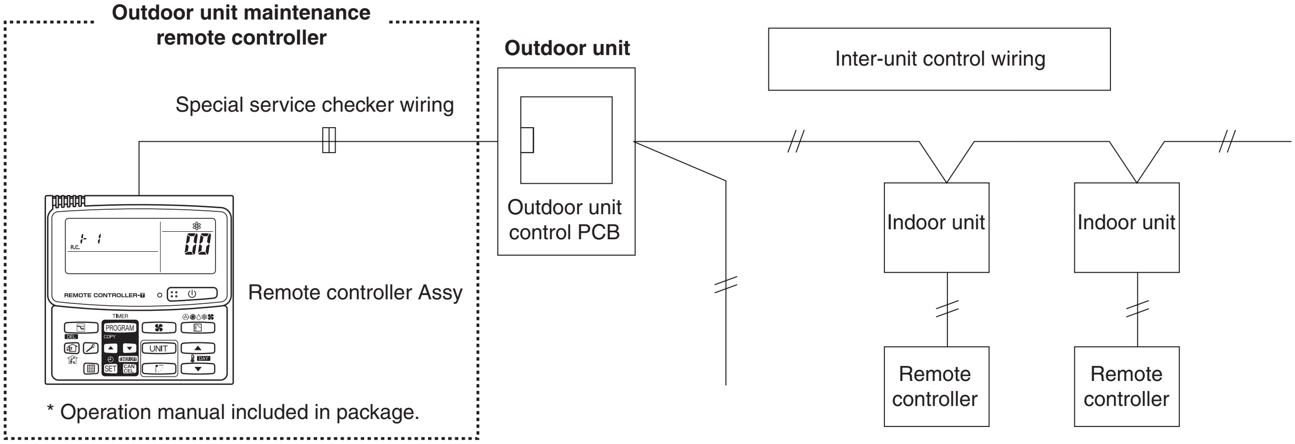
The outdoor unit utilizes non-volatile memory (EEPROM) on its PCB. This allows EEPROM data to replace the setting switches that were present on previous PCBs. The outdoor unit maintenance remote controller is used to set and change these EEPROM data.

In addition to setting and checking the outdoor unit EEPROM data, this remote controller can also be used to monitor the outdoor unit alarm history, monitor the various indoor and outdoor temperatures, and check the indoor unit connection status
(number of units, operating mode, etc.).

**NOTE**

Outdoor unit maintenance remote controller does not function as an ordinary remote controller. It is therefore only used for test runs and during servicing.

**System Diagram**


Outdoor unit maintenance remote controller
Special service checker wiring
Remote controller Assy
* Operation manual included in package.
Outdoor unit
Outdoor unit control PCB
Inter-unit control wiring
Indoor unit
Indoor unit
Remote controller
Remote controller

- The special service checker wiring is required in order to connect the outdoor unit maintenance remote controller to the outdoor unit PCB.
- Ordinary remote controllers or other controllers are still required for the indoor units, even when the outdoor unit maintenance remote controller is connected.

## 1-2. Functions

### ■ Functions on the ordinary display

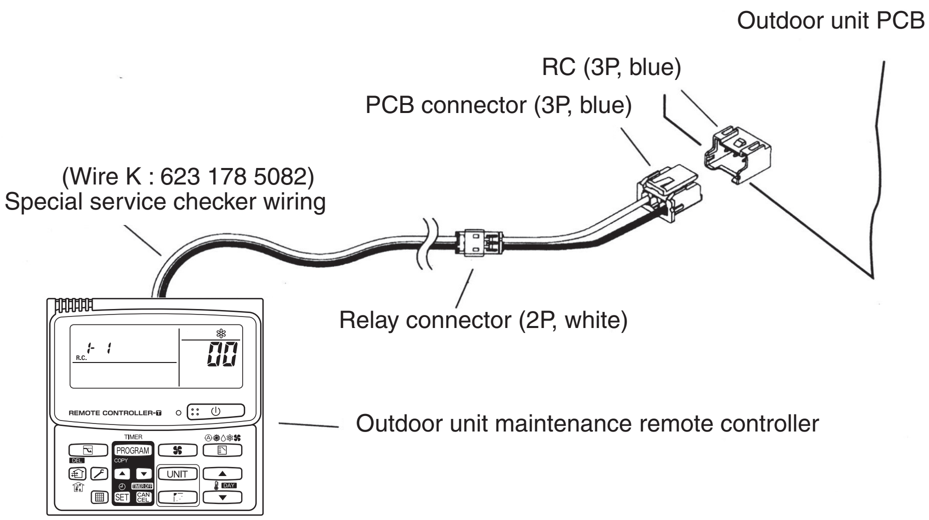
(1) Press the buttons to execute the following functions.
- All indoor units stop/start
- Cooling/heating change
- All indoor units test run

(2) Display: The following displays are possible.
- Alarm display
- No. of indoor/outdoor units
- Unit Nos. of connected indoor/outdoor units
- Operating status of indoor/outdoor units (Blinks when alarm occurs.)
- Indoor thermostat ON
- Display of individual outdoor unit alarms
- Total operating time of outdoor unit compressors
- Oil level of the outdoor unit oil sensor
- Total outdoor unit power ON time
- Outdoor unit microcomputer version, other information.

- **Temperature monitor**
  Displays the temperature from each indoor/outdoor sensor.
- **Outdoor unit alarm history monitor**
  Displays the outdoor unit alarm history.
- **Setting the outdoor unit EEPROM data**
  Settings mode 1 and settings mode 2 can be used to make outdoor unit EEPROM data settings.

### 1-3. Ordinary Display Controls and Functions

- **Functions on the ordinary display**
  Connect the special service checker wiring to the outdoor unit PCB.
  The connection diagram is shown below.


Outdoor unit PCB
RC (3P, blue)
PCB connector (3P, blue)
(Wire K : 623 178 5082)
Special service checker wiring
Relay connector (2P, white)
Outdoor unit maintenance remote controller
1-1
R.C.
00
REMOTE CONTROLLER
TIMER
PROGRAM
DEL
COPY
UNIT
DAY
SET
CANCEL

- If the inter-unit control wiring is connected, it can be left as-is.
- In the case of an independent outdoor unit (1 maintenance remote controller connected to 1 outdoor unit, automatic address setting for indoor units not completed), both setting mode 1 and setting mode 2 can be used for outdoor unit EEPROM data settings.
- The overall system status for that refrigerant system is displayed.

**All units start/stop (Fig. 6-1)**

<Operation>

The ⏻ (ON/OFF operation) button can be used to start and stop all indoor units.

- The LED illuminates if any indoor unit is operating.
- The LED blinks if an alarm occurs at any of the operating indoor units.

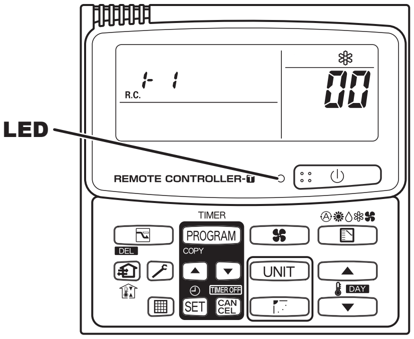

LED
1-1
R.C.
00
REMOTE CONTROLLER
TIMER
PROGRAM
DEL
COPY
UNIT
TIMER OFF
DAY
SET
CANCEL

Fig. 6-1

**Cooling/heating change (Fig. 6-1)**

<Operation>

The ◩ (MODE) button can be used to change between heating and cooling operation.

- The display indicates the operating mode of the indoor unit with the lowest unit No.

**All units test run (Fig. 6-2)**

<Operation>

The 🔧 (CHECK) button can be used to start and stop a test run for all units.

(To start, press and hold the button for 4 seconds.)

During the test run, "Test" is displayed.

- The status of test runs performed from the indoor unit remote controller is not displayed on the outdoor unit maintenance remote controller.

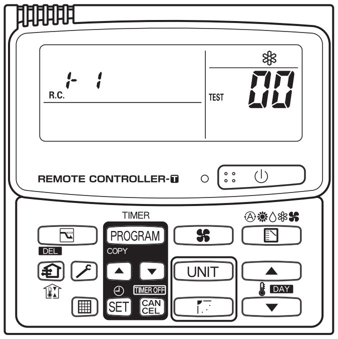

1-1
R.C.
TEST
00
REMOTE CONTROLLER
TIMER
PROGRAM
DEL
COPY
UNIT
TIMER OFF
DAY
SET
CANCEL

Fig. 6-2

# 1. Outdoor Unit Maintenance Remote Controller

### ■ Display (functions)

- The item codes can be changed with the「▲」and「▼」buttons.

| Item code | Item | Remarks |
|---|---|---|
| 00 | Outdoor unit alarm | Alarm code display |
| 01 | No. of connected indoor units | Quantity |
| 02 | Unit Nos. of connected indoor unit | 7-segment display |
| 03 | Operating status of indoor unit | 7-segment display |
| 04 | Thermostat ON status of indoor unit | 7-segment display |
| 05 | No. of connected outdoor units | 1 – 2 |
| 06 | Unit Nos. of connected outdoor units | 7-segment display |
| 07 | Operating status of outdoor unit compressor | 7-segment display |
| | | |
| | | |
| | | |
| 10 | Compressor 1 operating time | 0 – 99999999 hrs |
| 11 | Compressor 2 operating time | 0 – 99999999 hrs |
| 12 | Compressor 3 operating time | |
| 13 | Compressor 1 oil level | 0 = Empty 1 = Insufficient 2 = Sufficient |
| 14 | Compressor 2 oil level | 0 = Empty 1 = Insufficient 2 = Sufficient |
| 15 | Compressor 3 oil level | 0 = Empty 1 = Insufficient 2 = Sufficient |
| 16 | Outdoor unit power ON time | 0 – 99999999 hrs |
| 17 | Compressor 1 operation count | 0 – 65535 times |
| 18 | Compressor 2 operation count | 0 – 65535 times |
| 19 | Compressor 3 operation count | 0 – 65535 times |
| | | |
| F0 | Alarm history 1 (most recent) | Display only. Alarm code and unit No. of unit where alarm occurred are displayed alternately.<br>0 = CCU<br>1 – 2 = Outdoor unit |
| F1 | Alarm history 2 | |
| F2 | Alarm history 3 | |
| F3 | Alarm history 4 | |
| F4 | Alarm history 5 | |
| F5 | Alarm history 6 | |
| F6 | Alarm history 7 | |
| F7 | Alarm history 8 (oldest) | |
| | | |
| | | |
| | | |
| FE | Firmware version | Displays the version No. × 100. |
| FF | Program version | Displays the version No. × 100. |

# 1. Outdoor Unit Maintenance Remote Controller

**③ XX-YY R.C.**

Displays the outdoor unit sub-bus address which is currently selected.

XX = Outdoor unit system address (1 – 30)

YY = Outdoor unit address (1 – 2)

The locations where ①, ② and ③ are displayed as shown on Fig. 6-3.

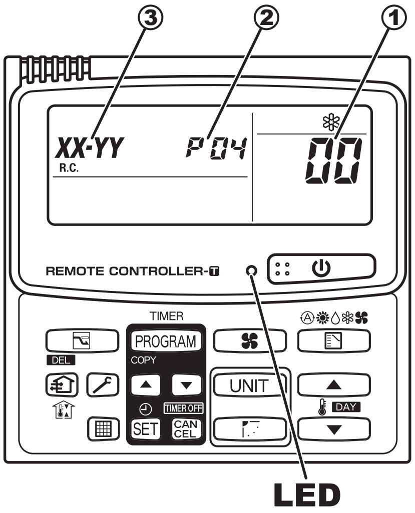
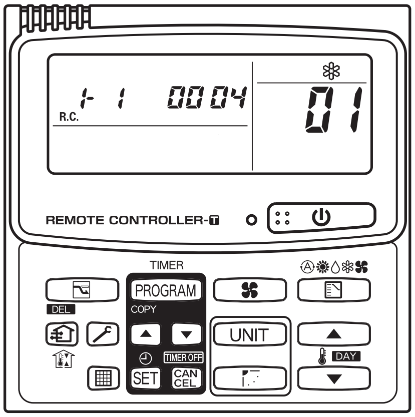

③
②
①
XX-YY
R.C.
P 04
00
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
TIMER OFF
SET
CAN CEL
LED

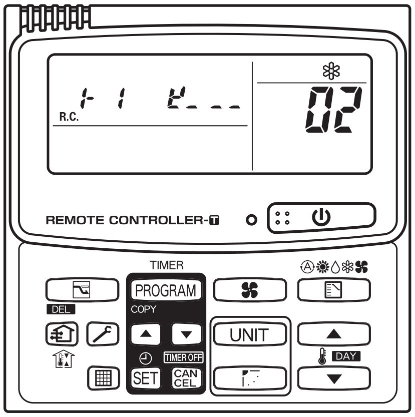
Fig. 6-3

**Sample display (Fig. 6-4, Fig. 6-5)**


1- 1
0004
R.C.
01
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
TIMER OFF
SET
CAN CEL

01 : <No. of connected indoor units>
4 units connected

Fig. 6-4


1- 1
R.C.
02
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
TIMER OFF
SET
CAN CEL

02 : <Unit Nos. 1, 2, 3, 4 connected>

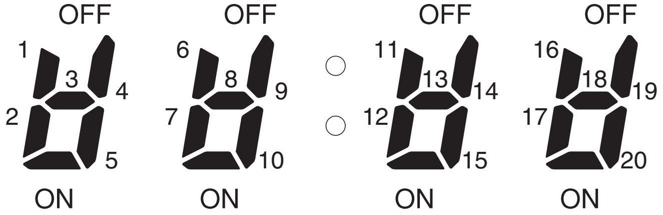
Fig. 6-5

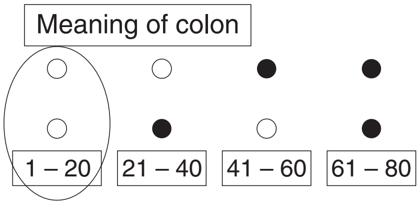
# 1. Outdoor Unit Maintenance Remote Controller

## ■ Concerning the 7-segment 4-digit display of remote controller timer time

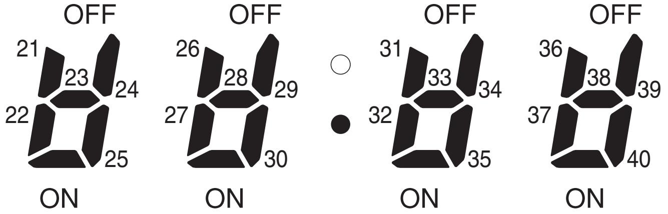
● The unit Nos. of connected units are indicated by four 7-segment digits（88 : 88）and a colon.

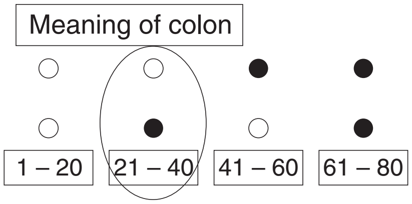
① **Display of unit Nos. 1 – 20**


OFF
OFF
OFF
OFF
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
ON
ON
ON
ON


Meaning of colon
1 – 20
21 – 40
41 – 60
61 – 80

② **Display of unit Nos. 21 – 40**

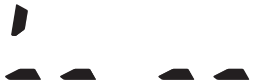

OFF
OFF
OFF
OFF
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
ON
ON
ON
ON


Meaning of colon
1 – 20
21 – 40
41 – 60
61 – 80

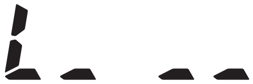
③ The meaning of the colon changes in the same way to indicate unit Nos. up to 80.

④ Sample displays of connected indoor unit Nos.

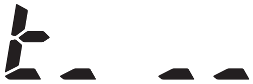
- Display of unit No. 1



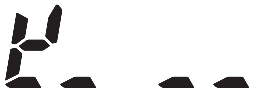
- Display of unit Nos. 1 and 2



- Display of unit Nos. 1, 2, and 3



- Display of unit Nos. 1, 2, 3, and 4

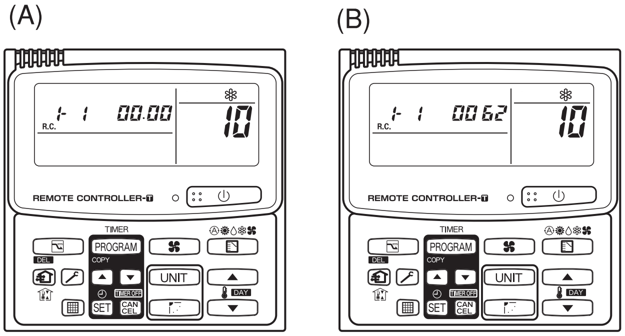


**NOTE**

The change of the colon display (between unit Nos. 1 –20 to unit Nos. 21 –40) occurs automatically every 10 seconds. (However the display does not change if there are no higher-number units connected.) To change the display to the higher-number units before 10 seconds have passed, press the (FLAP) button.

## ■ An 8-digit display is used for display of the compressor total operating time (in 1-hour units).

- When the first 4 digits are displayed, the bottom dot of the colon is illuminated. (Figure (A))
- When the last 4 digits are displayed, the colon dot is OFF. (Figure (B))
- The display of the first 4 digits and last 4 digits changes automatically after 10 seconds.
  The display can also be changed by pressing the (FLAP) button.


(A) (B)
R.C.
1- 1 00.00 10
1- 1 00 62 10
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
SET
CAN CEL
DAY

10 : <Compressor total operating time>:
(A) and (B) are displayed alternately
(The example here (0000, 0062)
indicates 62 hours.)

**Sample Display (A), (B)**

### 1-4. Monitoring Operations

Display the indoor unit and outdoor unit sensor temperatures.

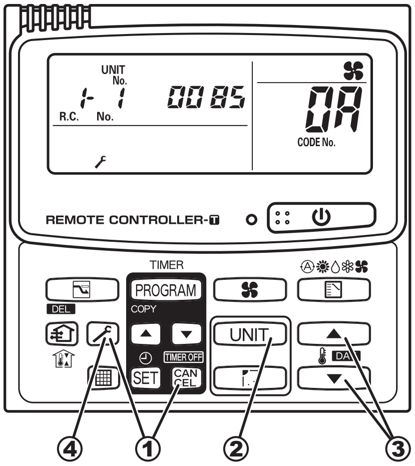
<Operating procedure>

① Press and hold the 🔧 (CHECK) and CAN CEL (CANCEL) buttons simultaneously for 4 seconds or longer to engage temperature monitor mode.
During temperature monitoring, 🔧 displays.
(The display and operations are the same as for monitor mode using the indoor unit remote controller.)

② Press the UNIT (UNIT) button and select the indoor unit to monitor.

③ Press the temperature setting ▲ and ▼ buttons and select the item code of the temperature to monitor. The unit No. of the selected indoor unit, and the temperature data, are displayed.

④ To end monitoring, press the 🔧 (CHECK) button.
The display returns to the normal display.



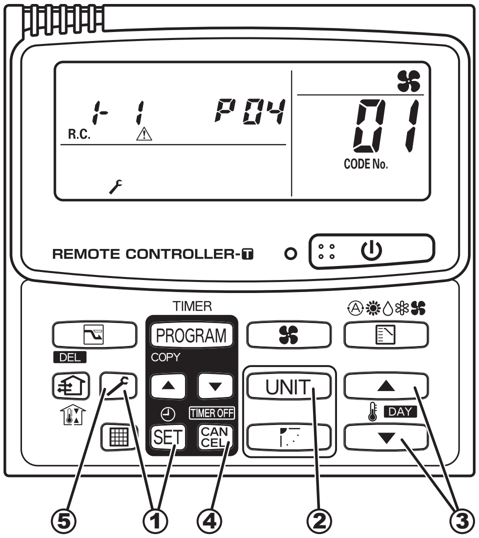
**NOTE** The display does not blink.

### ■ Display of unit No. 1 (main unit)

| DN | Description | Remarks | |
|---|---|---|---|
| 02 | Intake temp. | °F | Indoor unit |
| 03 | E1 | °F | |
| 04 | E2 | °F | |
| 05 | E3 | °F | |
| 06 | Discharge temp. | °F | |
| 07 | Discharge temp. setting | °F | |
| 08 | Indoor unit electronic control valve position | STEP | |
| 0A | Discharge temp. 1 at Compressor 1 | °F | Outdoor unit |
| 0b | Discharge temp. 2 at Compressor 2 | °F | |
| 0C | High-pressure sensor temp. | °F | |
| 0d | Heat exchanger gas 1 | °F | |
| 0E | Heat exchanger liquid 1 | °F | |
| 0F | Heat exchanger gas 2 | °F | |
| 10 | Heat exchanger liquid 2 | °F | |
| 11 | Outdoor air temp. | °F | |
| 12 | Not used | | |
| 13 | Inverter primary current | A | |
| 14 | Current at Compressor 2 (CT2) | A | |
| 15 | MOV1 pulse | STEP | |
| 16 | MOV2 pulse | STEP | |
| 17 | Discharge temp. 3 at Compressor 3 | °F | |
| 18 | Current at Compressor 3 (CT3) | A | |
| 1A | MOV3 pulse | STEP | |
| 1b | Heat exchanger gas 3 | °F | |
| 1C | Heat exchanger liquid 3 | °F | |
| 1d | Low-pressure sensor temp. | °F | |
| 1E | Suction temp. | °F | |
| 1F | Oil 1 | °F | |
| 20 | Oil 2 | °F | |
| 21 | Oil 3 | °F | |
| 22 | Actual operating frequency | Hz | |

**NOTE** 0A and subsequent items are outdoor unit data. 0A – 22 are for unit No. 1.
2A – 42 are for unit No. 2.

### 1-5. Outdoor Unit Alarm History Monitor



Recalls and displays the outdoor unit alarm history.

- This is for the outdoor unit only. Indoor unit alarms cannot be recalled.
- The indoor unit alarm history can be viewed on the indoor unit remote controller or other controller.

<Operation procedure>

① Press and hold the 🔧 (CHECK) button and SET (SET) button simultaneously for 4 seconds or longer to engage outdoor unit alarm history mode.
During temperature monitoring, 🔧 displays.
The display and operations are the same as for the alarm history monitor performed from the indoor unit remote controller. However the “unit No.” display shows the outdoor unit address.

② Press the UNIT (UNIT) button, and select the outdoor unit for which to monitor the alarm history.

③ Press the temperature setting ▲ and ▼ buttons and select the item code for the alarm history. The selected outdoor unit address, the item code, and the alarm history (alarm data) are displayed.
The outdoor unit address is displayed as R.C. XX – YY.
(R.C. XX = Outdoor unit system address
YY = Outdoor unit address
Item codes 01 – 08 are displayed. 01 indicates the most recent alarm.
The alarm history displays the alarm code.
(If no alarms are present, then - - - - is displayed.)

④ To clear the alarm history, press the CAN CEL (CANCEL) button.
(The outdoor unit alarm history will be cleared.)

⑤ To exit, press the 🔧 (CHECK) button.
The display returns to the normal display.

# 1. Outdoor Unit Maintenance Remote Controller

## 1-6. Setting the Outdoor Unit EEPROM Data

This function is used to make the outdoor unit EEPROM data settings.

### ■ Setting mode 1

① Press the 🔧 (CHECK) button and the ⌂ (VENTILATION) button simultaneously for 4 seconds or longer.

② Press the temperature setting ▲ and ▼ buttons to change the item code. The item codes and setting data are shown in the table below.

③ Press the timer time ▲ and ▼ buttons to change the setting data.

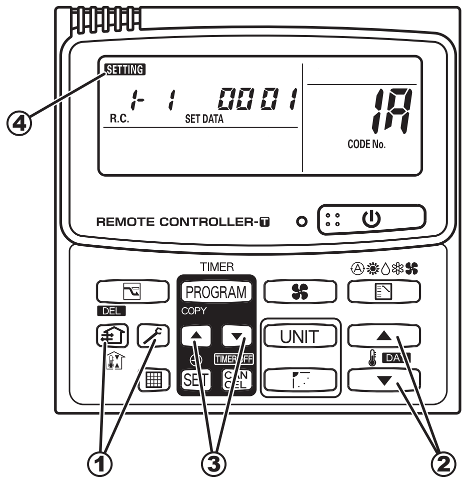
To confirm the changed setting data, press the SET (SET) button.

(At this time, the "SET DATA" display stops blinking and remains lit.)

④ "SETTING" blinks when this mode is engaged, and "ALL" appears in the outdoor unit address section. The item code number (values shown in the table below) and the corresponding setting data (6 digits) are also displayed. (The 6 digits of the setting data are displayed by changing between the first 3 digits (Fig. (A) and the last three digits (Fig. (B). When the first 3 digits are displayed, the top dot of the colon is illuminated.)

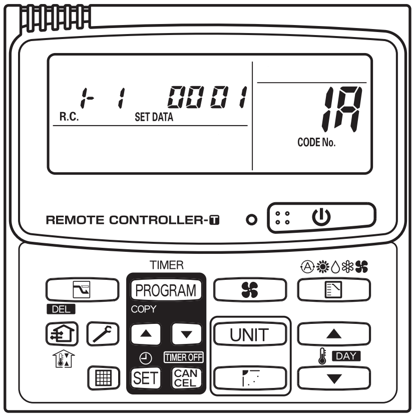
⑤ To exit setting mode, press the 🔧 (CHECK) button.

**(A)**


SETTING
1-1
0001
R.C.
SET DATA
1A
CODE No.
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
TIMER OFF
DAY
SET
CAN CEL
④
①
③
②

(A) and (B) are displayed alternately.

**(B)**


1-1
0001
R.C.
SET DATA
1A
CODE No.
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
TIMER OFF
DAY
SET
CAN CEL

| Code No. | Parameter | Description (SET DATA) |
|---|---|---|
| 04 | Snowfall sensor usage | 0000 = Sensor input not present. Control is performed.<br>0001 = Sensor input present. Control is performed.<br>0002 = Sensor input not present. Control is not performed.<br>0003 = Sensor input present. Control is not performed. |
| 05 | Outdoor unit fan Quiet mode | 0000 = Disabled 0001 = Quiet mode 1<br>0002 = Quiet mode 2 0003 = Quiet mode 3<br>0004 = Quiet mode 4 |
| 0E | Cooling | 0000 Heat pump<br>0001 Cooling |
| 1A | Demand 1 current | 0000 = 0% 0001 = 40 ... 0004 = 70 0007 = 100 0008 = 120<br>0009 = 140 0010 = 160 0011 = 200 0012 = –1 (no limit) |
| 1b | Demand 2 current | 0000 = 0% 0001 = 40 ... 0004 = 70 0007 = 100 0008 = 120<br>0009 = 140 0010 = 160 0011 = 200 0012 = –1 (no limit) |

# 1. Outdoor Unit Maintenance Remote Controller

## ■ Setting mode 2

① Press the 🔧 (CHECK) button, SET (SET) button and the CAN CEL (CANCEL) button simultaneously for 4 seconds or longer.

② Press the temperature setting ▲ and ▼ buttons to change the item code. The item codes and setting data are shown in the table below.

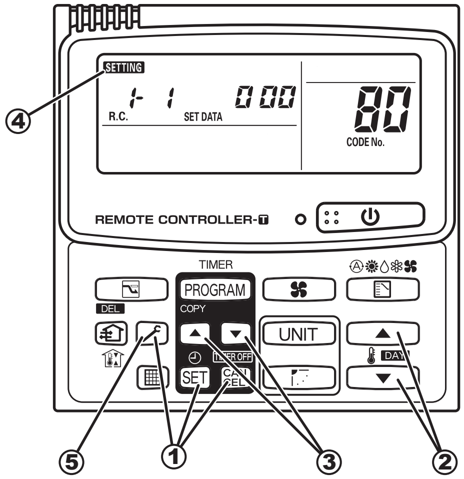
③ Press the timer time ▲ and ▼ buttons to change the setting data.

To confirm the changed setting data, press the SET (SET) button.

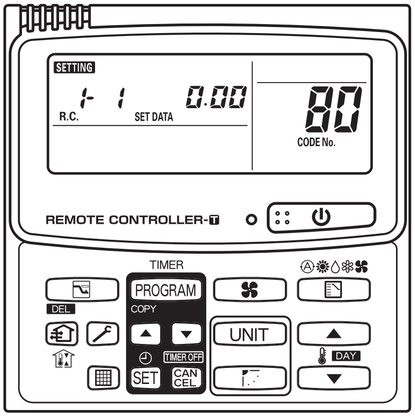
(At this time, the SET DATA display stops blinking and remains lit.)

④ "SETTING" blinks when this mode is engaged, and when this mode is engaged, "Now Setting" is displayed blinking, and the address of the outdoor unit that is being set "System XX-YY" (System XX = System address, YY = Outdoor unit address), the item code No. (values from the table below), and the corresponding settings data (6 digits) are displayed. The item code number (values shown in the table below) and the corresponding setting data (6 digits) are also displayed. (The 6 digits of the setting data are displayed by changing between the first 3 digits (Fig. (C)) and the last three digits (Fig. (D)). When the first 3 digits are displayed, the top dot of the colon is illuminated.)

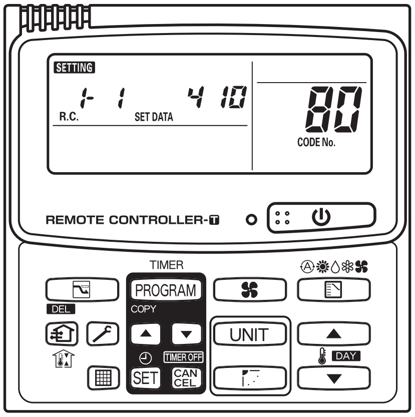
⑤ To exit setting mode, press the 🔧 (CHECK) button. Returns to normal display mode.


SETTING
1- 1
000
R.C.
SET DATA
80
CODE No.
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
SET
CAN CEL
TIMER OFF
④
⑤
①
③
②

**(C) Display of first 3 digits**


SETTING
1- 1
0.00
R.C.
SET DATA
80
CODE No.
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
SET
CAN CEL
TIMER OFF

**(D) Display of last 3 digits**


SETTING
1- 1
410
R.C.
SET DATA
80
CODE No.
REMOTE CONTROLLER-T
TIMER
PROGRAM
COPY
DEL
UNIT
DAY
SET
CAN CEL
TIMER OFF

80 : **Refrigerant type**: (C) and (D) are displayed alternately.
The example here (000, 410) indicates R410A.

| CODE NO. | Parameter | Description (SET DATA) |
|---|---|---|
| 81 | Outdoor unit capacity | 0 = Disabled<br>224 (72 Type) 280 (96 Type) |

# – MEMO –

201201